DR. A. E. MARTIN

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VOLUME 204 FEBRUARY 19, 1931 NUMBER 8

NEW ENGLAND SURGICAL SOCIETY

A CASE OF KOEHLER'S DISEASE*

The Patient Was a Girl 4 1-2 Years of Age

BY DANIEL C. PATTERSON, M.D.†

NORMAL delivery. Weighed 6 lbs. 5 oz. at birth. Breast-fed, and at one year of age weighed 25 pounds.

Had an attack of acidosis in 1927. This was followed by several attacks during the next two years. Last attack was in the Fall of 1929.

Had abscesses of both ears in 1927, with discharge from January to April.

In 1928 adenoids were removed.

In November 1929 had an abscess in one ear. This was followed by tonsillitis. The ear continued to discharge until January 1930.

In June 1929 the patient began to limp and complained of pain in the left foot, which was localized on the dorsal surface. An x-ray examination made at that time showed a distinct change in the left tarsal scaphoid, and a diagnosis was made of Koehler's disease. The foot was strapped. Patient was allowed to be about.

A month later the patient was still complaining and she was taken to another physician and a diagnosis of knock-knee was made and the foot was actively treated with physiotherapy measures and strapping of both feet, for about two months. There was

FIG. 1. July, 1929, showing diseased left tarsal scaphoid.

FIG. 2. July, 1929. Uninvolved right tarsal scaphoid.

*Read before the Annual Meeting of the New England Surgical Society at Boston, September 26, 1930.

†Patterson—Attending Surgeon, Bridgeport Hospital, Bridgeport, Conn. For record and address of author see "This Week's Issue", page 392.

no improvement and the patient made more complaint of pain, and there was an increase in the limp.

In November the patient was barely able to touch the foot to the floor. There was some slight swelling over the dorsum of the foot and a small area of tenderness over the scaphoid bone. An x-ray examination at that time was reported as follows: "Radiographic reëxamination of the left foot confirms the previous findings of changes in the tarsal scaphoid, incident to Koehler's disease. Comparison with the previous films shows more flattening of the bone in the anteroposterior direction, and elongation in a perpendicular plane, which is more deformity than was noted previously."

The patient was in excellent general condition. A plaster cast was applied from the toes to the knee. The patient was allowed to be about on it. A month later the pain had entirely disappeared and patient walked about on her cast without any difficulty. A new cast was applied and this was left on until the 7th of January (or a month later).

After the removal of the cast the foot was strapped firmly with adhesive and the patient was able to walk without complaint. The strapping was continued until the middle of March when it was left off entirely. The x-ray report at this time showed the "deformity of the scaphoid bone persisting, but fairly well calcified". The report read "From the Roentgen appearance we believe the lesion is quiescent." Since then the patient has been entirely free from symptoms and has made no further complaint in regard to the foot.

Radiographic examination on August 8, 1930, was as follows: "Reëxamination of the left foot shows a decided improvement in the appearance of the tarsal scaphoid. The thickness of the bone is beginning to approach normal and the calcification is more nearly to a normal density."

FIG. 3. November, 1929. Thinning has progressed.

The origin and nature of this condition is still in dispute. It was first described by Koehler in 1908. Koehler says the affection has nothing to do with tuberculosis, while others say it is an abortive form of tuberculosis.

Trauma has not been proven a factor. It has been said to occur in weakly children, but this has not been found to be so. Hereditary factors do not seem to play a rôle. In causes, Koehler says, "The most probable cause is an immoderate strain acting on a normal scaphoid for months at a time, or a continuous normal strain acting on a scaphoid weak in development."

Two-thirds of the cases occurred in children in the fifth and sixth years. The limits are apparently three and ten years. Three-quarters of the cases reported were boys.

One author states, "The clinical symptoms are almost nil, the Roentgen picture is everything. When one has seen it once, one never forgets it." However, pain and swelling are usually present over the scaphoid.

The disease appears, under ordinary rest, to clear up in one or two years, with restoration of a completely normal structure. There is no indication for surgery.

Discussion

Dr. George W. Hawley* (Bridgeport, Conn.): *Mr. President and Members of the New*

*Dr. Hawley being absent the prepared discussion was read by Dr. Sweet.

England Surgical Society—It is a pleasure to discuss Dr. Patterson's case of Koehler's disease and to contribute a few remarks about this interesting affection. I have treated a few cases of this disease and my experience has been that recovery is the rule with partial rest and adhesive strapping. In Dr. Patterson's case more effective protection and immobilization were necessary.

Koehler's disease is one of those mysterious affections of adolescence which excite one's curiosity and speculation. It brings to mind other strange lesions peculiar to bones in the growing period of life, such as Freiburg's disease of the second metatarsal, Perthe's disease of the head of the femur, Osgood-Schlatter's disease of the tibial tubercle, Sinding-Larsen's patellitis and apophysitis of the os calcis. It is my belief that these affections are due to trauma and the resulting pathological changes result from disturbance of the blood supply to the affected bone. Any bone is dependent on a normal blood supply. It is natural to expect that anything which interferes with this would result in changes in that bone and that such changes would be more noticeable in growing than full-grown bones.

The mechanical idea to me is more reasonable than the infective theory in these particular affections. I do not believe that sufficient consideration has been given to the effect disturbed nutrition has on bones as the result of trauma. In some bones and in some parts of the large bones the arterial supply and the factor of safety is fairly high while in others it is low.

It is not difficult to imagine that anything which lowers this factor of safety might result in changes in a bone so affected.

The trauma may be only a crushing of the cartilage covering of a small bone, compression of spongy bone, a fissure in an epiphyseal cartilage, undemonstrable by clinical or x-ray examination.

It has been a hobby of mine to believe that impaired blood supply to bones explains many things which puzzle us, after major and minor injuries—more particularly after minor injuries and in bones with a potentially low factor of safety. This I think is an important consideration in injuries of the bones of the carpus and tarsus.

At the same time the changes seen in some bones in adults are quite similar to those seen in adolescents. The peculiar late changes found in the wrist after fracture of the radius and the carpal bones, described by Dr. Kellogg Speed can be explained on the ground of disturbed blood supply and also Kienboeck's disease of the carpal semi-lunar.

FIG. 4. August, 1930. Reorganization taking place.

If I may be permitted to ride my hobby a little further I would say that the bone atrophy, delayed union, sclerosis, eccentric callus formation and other odd phenomena sometimes observed in fractures, probably result from deficient or altered vascularization. And it is difficult to see how repair can finally result until the revascularization is complete. This explains, I think, delayed union, failure of some bone graft operations, the usual failure of union in fracture of the carpal scaphoid when immobilized for a few weeks only, the slow but spontaneous recovery in Perthe's and Koehler's disease.

It may be a long stretch of the imagination to compare fractures of the scaphoid of the hand with Koehler's disease of the scaphoid of the foot. I hardly think so. The only difference is that in obvious fractures of the scaphoid of the wrist revascularization and solid union usually requires two to six months' immobilization. On the other hand, Koehler's disease which I think can

be considered as injury of the cartilage envelope in most cases or an incomplete compression fracture without collapse, the revascularization and repair is early in the former and late in the latter. In Dr. Patterson's case complete immobilization was required to effect recovery indicating more than the usual injury in Koehler's disease.

I thank you for the opportunity to discuss this interesting subject.

DR. J. W. SEVER, Boston: I have very little to add to this paper or the discussion. We have had a great many of these cases at the Children's Hospital, and if the child comes in with a pronated foot and a swelling of the scaphoid, we always think of Koehler's disease. The differential diagnosis I think is always of importance because it might well be confused by reason of the x-ray picture, or even from the clinical appearance, of early specific disease or early tuberculosis.

The interesting thing to us as we have followed the cases with perhaps a minimum amount of protection, is the gradual and inevitable restoration of symmetry to the scaphoid. Many men advocate complete protection, freedom from weight-bearing and a plaster cast, even to a high sole on the other shoe. I think our practice has been in those cases that come into the wards to apply a cast and keep them free from weight-bearing for perhaps no fixed period, but following it up by x-ray for study of progress until at least there are definite signs of regeneration.

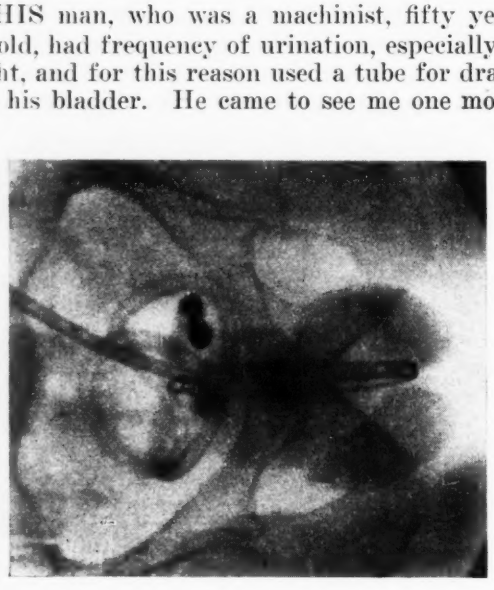
The etiology of the disease so far as I know has never yet been wholly cleared up. It has been thought to be due perhaps to trauma, but in every child one can always find a history of trauma. It has been thought many times to follow some kind of infection, possibly primary, or some bloodstream condition. There have been various bone sections or biopsies of these various scaphoids where in some cases there have been found bacteriological evidences of infection, and I think that in several cases which have been reported by Kidner and Munro in Detroit, they felt there was evidence of infection.

But after all the etiology so far I think has not been wholly cleared up, and it seems to me that the idea that was offered today is perhaps the one generally accepted. Koehler's disease is secondary to persistent trauma and cure will follow adequate protection.

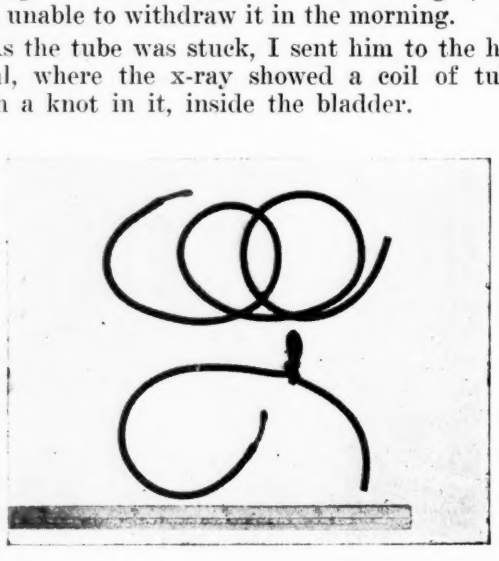
FOREIGN BODY FROM BLADDER*

BY JAMES W. JAMESON, M.D.,† CONCORD, N. H.

THIS man, who was a machinist, fifty years old, had frequency of urination, especially at night, and for this reason used a tube for draining his bladder. He came to see me one morning with part of the tube wound around his waist and the other end entering his urethra, saying that he inserted the tube at night, but was unable to withdraw it in the morning.



As the tube was stuck, I sent him to the hospital, where the x-ray showed a coil of tube, with a knot in it, inside the bladder.



The tube was cut off and the part inside the bladder removed by suprapubic incision, which healed readily.

It is difficult to understand how the tube could tie itself into a single knot and a slip knot inside the bladder.

*Read at the Annual Meeting of the New England Surgical Society, at Boston, September 27, 1930.

†Jameson—Attending Surgeon, Margaret Pillsbury General Hospital. For record and address of author see "This Week's Issue", page 392.

TRAUMATIC SEPARATION OF THE SYMPHYSIS PUBIS

BY JAMES WARREN SEVER, M.D.*

IN a recent paper[1] I reported 51 cases of fracture of the pelvis. In none of these was there any marked separation of the pubic symphysis. Three recent cases have shown marked separation of this joint, associated with fractures in other portions of the pelvis. In none was there any bladder involvement and, surprising to state, neither was there any subsequent discomfort nor disability. These three cases have shown such a marked separation that I felt that it was important to report them, in that, in the literature many such cases have been reported as having been operated upon for the purpose of suturing or wiring the symphysis. This, I believe, in the vast majority of instances is unnecessary.

Timm[2] reports two cases of traumatic separation of the pubis caused by automobile accidents. He operated on both patients, suturing the symphysis with wire in one instance, and fixing it with a nail in the other. His results were perfect, but he believes that conservative measures should generally be followed, and operation resorted to only when other measures fail.

Wishner and Mayer[3] describe 5 cases of postpartum separation of the symphysis pubis, a condition which they consider to be comparatively frequent. They believe that these cases are associated with pain localized in the region of the pubic arch, and a waddling gait due to a posterior displacement of the hip joints, secondary to sacro-iliac spreading. Functional cure is possible by gradual lateral compression of the pelvic bones, which restores them to their approximal normal positions. These writers also call attention to the rupture of the anterior sacro-iliac ligament, always associated with marked separation of the pubic arch, and secondary to the separation of the sacro-iliac joint.

Colp and Findlay[4] cite a series of 35 cases of fractures of the pelvis, among which were 4 cases of separation of the pubic symphysis, associated with other severe injuries. Six of their patients died in the hospital from their multiple injuries, giving a percentage of 17% mortality for their pelvic fractures, which were all of a severe type.

Sparrow[5] reports one case of traumatic separation of the symphysis pubis in an old man as the result of being caught under the wheel of an automobile truck. This produced a spreading or "unfolding" of his pelvis. There was an original separation of the pubic bones of 9 cm., or 3 5/8", which was reduced by strapping and swathes to 6 cm. The author makes the interesting observation that by the end of six weeks sufficient union had occurred at the separated sacro-iliac joints to prevent subsequent or further closure at the pubic arch. His patient when last seen was walking with crutches.

Noland and Conwell[6] present 125 cases of acute fracture of the pelvis, among which were 9 cases of pubic separation as well as 9 cases of sacro-iliac separation. These, of course, generally go hand in hand. These observers state that only about 60% had what they regarded as good anatomic positions when discharged, but that good functional results were frequent in those cases in which good anatomic position was not secured. They believe in suspension of the pelvis combined with traction on both legs, with 15° to 20° abduction of the thighs at the hips. Bed treatment is continued for six weeks and weight-bearing allowed at 7 or 8 weeks.

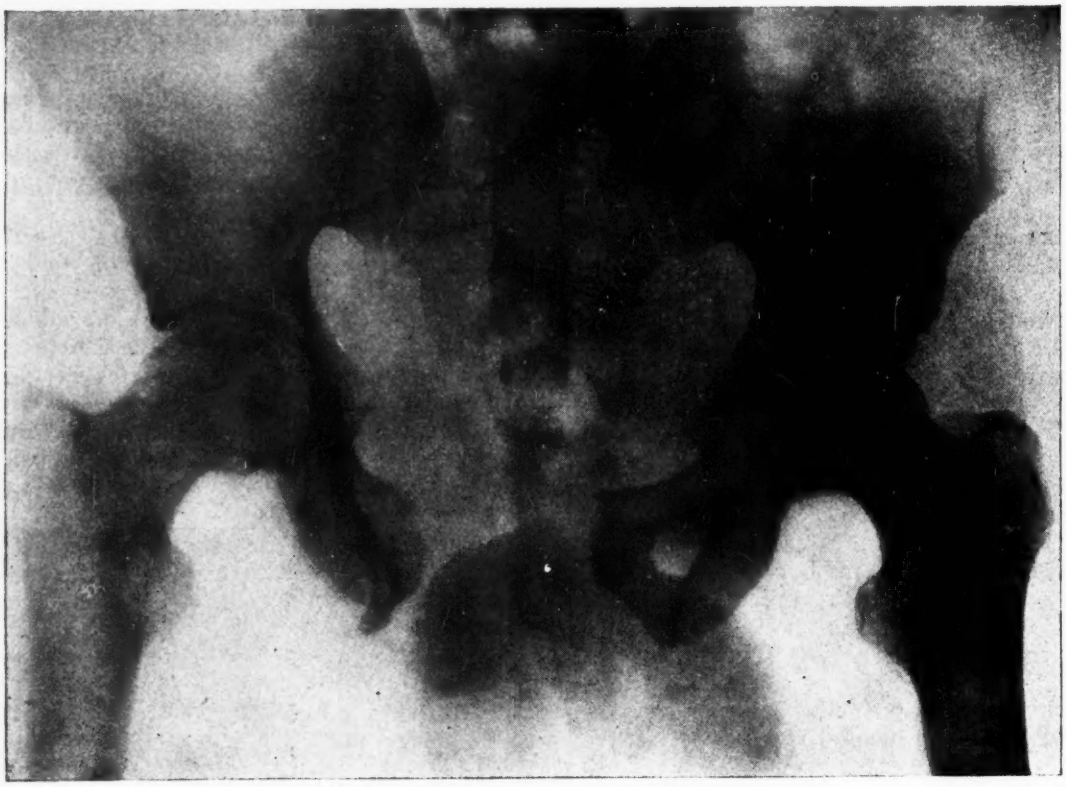
X-RAY NO. 1.

It is clear that most of these authors are reporting cases of severe injuries to the pelvis, with accompanying injuries to the soft parts. There is a mortality range from 10% to 17%. In the three cases I have to report there were severe injuries without intrapelvic soft part complications, such as rupture of the bladder, urethra, or other severe pelvic fractures.

CASE 1. Female, aged 23 years. Fractured pelvis with pubic separation, December 29, 1921. The patient was coasting on a double runner, or bob sled, and came into collision with an automobile. She was taken at once to the Gale Hospital in Haverhill and was found to have a lacerated perineum and a large hematoma of the left vulva. The bladder was uninjured. The wounds were sutured at once. The injury was treated by a swathe and the patient discharged from the Hospital July 26, 1922. X-ray of the pelvis showed a fracture of the outer end of the os pubis; a comminuted fracture of the inner third of the ischium; marked pubic separation; no separation of the sacro-iliac joints.

An x-ray taken April 27, 1923, about a year and a half after the accident (see x-ray No. 1), shows still considerable separation of the pubic arch. The pa-

*Sever—Associate Orthopedic Surgeon, Children's Hospital. For record and address of author see "This Week's Issue", page 592.



X-RAY NO. 2.

X-RAY NO. 3.

tient is well, has no limp, and the condition has no apparent affect on her gait. By measurement of x-ray films there is a separation of 1½", or almost 4 cm. A comparison of the original film with this one of April 1923, shows very little difference.

CASE 2. J. D., male, aged 23 years. This man, as he was standing in the street, was struck by an automobile with such force that he was thrown about 40 ft. He was unconscious when picked up, and was taken at once to the Symmes Arlington Hospital, Arlington. He complained the next day of

X-RAY NO. 4.

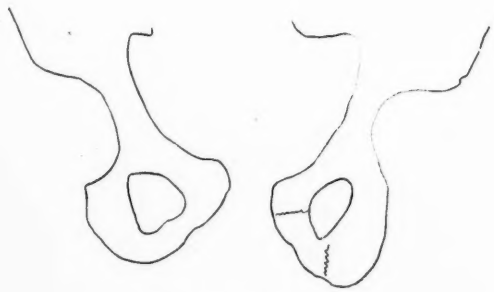
pain in the legs and back. There was marked swelling in the region of the pubes and down the inner aspect of both thighs. There was also marked swelling of the scrotum. Later he developed large areas of ecchymosis extending to the knees. There was also a fracture of the head of the right fibula. There was no involvement of the bladder. The first x-ray examination (4/14/28) x-ray No. 2 showed separation of the symphysis pubis to a tremendous extent, about 3", the left side being rotated outward and forward more than the right, but the latter showing more separation at the sacro-iliac joint. There was probably a fracture of the upper and lower left pubic rami, but this was not actually visible in the plane seen.

The second x-ray examination (6/3/28) x-ray No. 3 showed that there was distinctly less separation than seen previously at the symphysis, about 1" now as compared with two or three inches before. There was slightly more downward displacement of the left pubis, ½". Stereoscopic views showed a bending outward and downward of the inferior ramus on the ischial ramus and of the superior pubic ramus on the ilium at the junction of the two at the tuberosity. There was a definite fracture at the latter point, and probably at the former. In other words, a segment of the innominate comprising the pubic bone with both its rami had been fractured and bent downward and inward.

A third x-ray examination (x-ray No. 4) shows the condition on January 6, 1929.

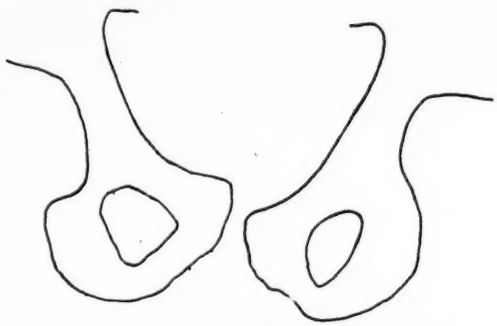
The recovery was uneventful and the functional result perfect. Treatment consisted of a heavy pelvic belt alone.

CASE 3. This was a young boy, about 10 years old, who was run over by an automobile. He was seen on the 4th surgical service of the Boston City Hospital. There were no intra-abdominal injuries, and convalescence was uneventful. Treatment was by a swathe alone. The tracing of the first x-ray (x-ray No. 5) showed considerable separation of the pubic



CASE 3—X-RAY NO. 5.

arch. The last showed nearly normal approximation but some asymmetry (x-ray No. 6). The functional recovery was perfect.



CASE 3—X-RAY NO. 6.

I believe that these three cases show that functional recovery may occur in spite of considerable separation at the symphysis, even if perfect anatomical reposition is not obtained. A heavy swathe, kept tight, is usually sufficient support to the pelvis. Wishner and Mayer's scheme of a constant pressure swathe is useful and could be employed. Except in unusual cases I do not believe operation is indicated.

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SODIUM AMYTAL AS AN INTRAVENOUS ANAESTHETIC*

BY JAMES C. MC CANN, M.D.,† AND JOHN FALLON, M.D.†

INTRODUCTION

THE reports from several clinics that have investigated sodium iso-amyl-ethyl barbiturate (sodium amytal) as an anaesthetic have aroused general interest in the merits of the drug. This paper reports our observations with it given intravenously to one hundred and thirty selected surgical cases operated upon by Drs. M. F. Fallon, W. F. Lynch, and the writers. In our experience it produces a narcosis sufficiently deep to be used as a basic anaesthetic. In this rôle it has contributed definitely to the comfort of the patient during the induction and the recovery periods of anaesthesia. It had no important drawbacks other than causing restlessness for a short time during recovery, and an apparent predisposition toward pulmonary edema.

Fredet and Perlis of France (1924)[1] introduced "somnifene", which was the first derivative of barbituric acid to be administered intravenously to man. Bumm (1927)[2] introduced "pernokton", another barbiturate, which the Germans received enthusiastically as a satisfactory intravenous anaesthetic. The use of sodium amytal as an anaesthetic agent has aroused much interest on this continent. It was first given intravenously by Page and Coryllos (1926)[3], to produce surgical anaesthesia in laboratory animals, and was first used successfully to produce general anaesthesia in man by Zerfas and McCallum (1929)[4, 5]. Lundy[6, 7], Mason and Baker[8], Sloan[9], Emge and Hoffman[10], Heyd[11], Holman and Palmer[12], Ranson and McLellan[13], Graham[14], Sise[15] and others have since reported their experiences with it.

TABLE I

TYPES OF CASES GIVEN SODIUM AMYTAL INTRAVENOUSLY IN A SERIES OF 130 SURGICAL CASES

Type of Operation	Number
Stomach and Duodenum	30
Gall Bladder and Ducts	26
Thyroid	16
Appendix	15
Caecum, Colon, Rectum	7
Pelvis and Perineum	11
Hernia	13
Kidney	2
Breast	3
Amputations	4
Hemorrhoids	1
Abscess	1
Lipoma	1
Total	130

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We have obtained the most help from amytal by combining it with other anaesthetics, according to the principle of balanced anaesthesia (Lundy). Used in this way as a basic narcotic it reduced the amount of inhalation anaesthetic subsequently required by 25% to 75%. Ether was used as the supplementary anaesthetic in all except the goitre cases, for which we used nitrous oxide-oxygen gas. The reason for using ether was twofold: it gave more satisfactory relaxation than other anaesthetics; and secondly, if amytal is to become widely used, a large proportion of surgeons will supplement it with ether rather than with other anaesthetics.

METHOD

The quantity of amytal given to each patient was determined by three factors—the general condition of the patient, the rate of onset of unconsciousness, and the fall in systolic blood pressure. We disregarded mathematical calculations of dosage based on the weight of the patient. The maximal dose administered was 22½ grains (1.5 grams.) Others have reported the use of larger quantities with safety. Young, healthy, vigorous adults tolerated larger doses than older, debilitated ones. Unconsciousness came more rapidly in some people than in others, but, as a rough rule, we gave twice the amount of amytal for anaesthesias as was required to induce unconsciousness. The systolic blood pressure fell in all patients to whom amytal was administered. The rate and extent of this drop of blood pressure was the most important guide to dosage.

Sodium amytal is a soluble alkaline salt with a PH value in solution of 9.5 to 9.8. This preparation gives a maximal anaesthetic effect with minimal toxic action. It is prepared for administration as a one to ten solution in sterile distilled water. Two precautions are taken: first, the solution must be clear, because to inject a cloudy solution may produce toxic effects; secondly, the rate of injection must not exceed one cubic centimeter (one and one-half grains) per minute. During the injection an assistant takes blood pressure readings on the opposite arm every two or three minutes, to follow the drop. In old, debilitated people more frequent readings are taken because a more rapid drop in the pressure occurs. It has been our practice to inject one-half a cubic centimeter of one to one thousand epinephrin solution intramuscularly when the blood pressure fell to 90 mm.; after a delay of a minute this usually restored it to normal and the injection of amytal could be continued.

The patients comprising the first half of our series received from 18 to 22½ grains each (1.2

to 1.5 grams). Those in the last half received no more than 15 grains (1.0 gram), and were fully as satisfactory for surgery as those who received the larger dosages. Supplementary anaesthesia was started immediately, when needed. With etherization there was very little excitement, reflexes were quickly abolished, and in two to five minutes there was complete surgical relaxation. This was maintained with small amounts of ether. One to two ounces frequently sufficed for an operation such as cholecystectomy. Eight to ten ounces were needed sometimes, but the average amount of ether used for major operations was less by half than would have been required without amytal.

For preliminary medication patients received nine grains of chloretone by mouth, four hours before operation. When called to the operating room they were given hypodermics of morphine sulphate, 1/6 to 1/4 grain, with atropine sulphate 1/150 grain. We do not believe the chloretone was essential to the satisfactory action of amytal. However, the patients were slightly drowsy when brought to the operating room and this probably reduced their psychic reaction to the ordeal.

RESULTS

Induction: The ease with which patients slip into unconsciousness is as dramatic as it is satisfying. From an alert mental state, the patient gradually becomes lethargic; his speech is slow and thick, his eyelids droop, and in the middle of an unfinished sentence he passes into profound slumber. One drowsy patient said that she felt as though rare old wine were coursing through her veins. The shortest time before unconsciousness came was three minutes (4 to 5 grains); the longest nine (13 grains); the average five to six minutes (7 to 9 grains). One patient complained of an unpleasant odor just before lapsing into unconsciousness. Another with a toxic goitre had a decided tremor of the whole body as amytal was injected, but it gradually subsided.

Operation: Amytal used alone was a satisfactory anaesthetic in only nine cases of our series. Two amputations of the thigh, two caecostomies, two herniotomies, two appendectomies and one dilatation and curettage were done without supplementary anaesthetic. About 92% of the series required a supplementary anaesthetic to bridge the gap between deep narcosis without relaxation and surgical anaesthesia with satisfactory relaxation. With amytal alone the patient stirred or moved his arms and legs when the skin was incised. As a preliminary measure before draping the patient, a strap was placed across the thighs just above the knees, and the arms were fixed securely by the sides. Supplementary anaesthesia quickly controlled restlessness. Of our series 8% were operated upon using amytal alone; 10% with amytal plus nitrous oxide and oxygen; and 82% with amytal supplemented by ether administered by the open drop method. We have not combined amytal with either local or spinal anaesthesia.

Recovery: The comfort of recovery strongly appeals to both patient and surgeon. The patient is unconscious for a variable number of hours after the operation; he naps and arouses at intervals for the first twelve hours; he is gratefully lethargic for the next twenty-four hours; and he leaves the hospital with a dimmed memory of the first three postoperative days. This means a minimum of psychic trauma. Smaller amounts of morphia were required after operation, which might have contributed to the definite reduction of "gas pains" we observed.

The period of unconsciousness was variable, depending upon two factors,—the amount of drug used and the condition of the patient. The larger doses usually caused more prolonged slumber than smaller doses, although there was no close parallel between the amount given and the duration of the sleep. Elderly, debilitated people were usually the slowest in making their recovery; active people, and particularly those with toxic thyroids, recovered more rapidly. The average period of unconsciousness after operation was four and a half hours; the longest, fifteen hours; the shortest, immediate recovery on the operating table when the accessory anaesthetic was removed. About 60% of the patients were sufficiently awake to talk and take sips of water after four and a half hours; 33% were awake within ten hours after the operation; only 7% were unconscious over ten hours, and none slept longer than fifteen hours.

As the patients approached consciousness some of them were restless and made an effort to get out of bed. One actually got out of bed while the nurse was busy with another patient. The restlessness is not a delirium, but merely an aimless raising of the arms and legs, as if to be up and active. It was easily controlled by adequate doses of morphine. A wide bandage, swung around the lower thigh and bed, was sometimes used to quiet them. One Sister observed that the first restlessness seemed to come from a desire to urinate. If this desire was deadened by morphine the patients were usually quiet until recovery, and then voided spontaneously.

For twelve hours after the recovery of consciousness the patients were heavy and drowsy and enjoyed frequent short sleeps. During the next twelve hours there was some residual amnesia and patients were not nearly so sensitive to discomfort as the average surgical patient. There was remarkably little nausea and vomiting. Only 18% of the patients had any postoperative vomiting. After five or six days many patients had very little recollection of their experience from the time the needle was placed in the vein until they were moderately comfortable forty-eight hours after operation. One pa-

tient who had an extremely severe reaction following an intravenous injection of glucose, the day after operation, remembered nothing about it.

Complications: Pulmonary edema was the only serious complication we observed. Its incidence was higher in our series than in other reported series, but it is to be understood that amytal was the anaesthetic of choice for our bad-risk cases. Although the amytal group is a limited number of all the cases operated upon during the last eight months, yet most of the bad-risk cases during that period are included. The prolonged shallow breathing under amytal may contribute to the development of pulmonary edema. It occurred in four patients, two of whom were elderly, obese men with cardiovascular disease—very poor risks. They developed pneumonia and died. The other two were young men who had been gassed during the World War. One, who had a lung abscess after the gas, developed pneumonia and died. The second developed pneumonia but recovered. We have heard of two other cases of severe congestion in people who previously had had bronchiectasis or lung abscess. We believe that any past history of pulmonary suppuration contraindicates the use of amytal. We also hesitate to give it to persons with chronic productive cough, whether from excessive smoking, congestive heart failure, or other cause. One patient had pneumonia without pulmonary edema.

TABLE II

COMPLICATIONS IN 130 GENERAL SURGICAL CASES WITH AMYTAL ANAESTHESIA

Complications	Number
Nausea and Vomiting	21
Restlessness	15
Irrationality	1
Cyanosis	1
Urinary retention	10
Incontinence	1
Bronchitis	2
Pulmonary Edema and Pneumonia	4
Pneumonia without Pulmonary Edema	1
Sore Arm	1
Failure Induction	1

Others have reported the frequent occurrence of urinary retention after amytal, but less than 10% of our patients were catheterized. Half of these had operations for hernia or pelvic disease and might have required catheterization independent of the anaesthetic. Restlessness, cyanosis and similar lesser complications were easily controlled and are discussed in other paragraphs.

SYSTEMIC EFFECTS

Cardiovascular: As the amytal is injected, there is a progressive saturation of the blood stream by it, which results in a parallel drop in blood pressure, the amount of fall depending upon the stability of the patient's cardiovascular system. The systolic pressure usually fell 30 to 40 mm. of mercury and the diastolic 10 to 15 mm. A few patients had a very slight fall of pressure, while in others, especially debilitated individuals or those with hypertension, it was rapid and greater. A decrease of 90 mm. systolic pressure was common and we arbitrarily selected this as the point at which epinephrine should be injected. A drop in systolic pressure to 70 mm. is safe, but we preferred to stimulate the circulation before that level was reached. Epinephrine usually restored the blood pressure to its normal level and permitted the injection of amytal to be continued. A few individuals showed a second drop in pressure as the injection was continued. In these the epinephrine was repeated and the amytal discontinued. About 40% of the cases showed a minor drop in blood pressure which did not require stimulation, about 50% dropped to 90 mm. (systolic) and received one injection of epinephrine; about 10% of the series showed two drops in pressure and required epinephrine twice. Once the operation was started, the manipulations served as a sufficient stimulus to maintain the pressure. It may be said that once the injection of amytal is stopped, the blood pressure will not fall below its level at that moment, unless from causes other than the amytal. The pulse rate showed no constant reaction to the injection of amytal; sometimes its rate was increased, sometimes it was decreased. The quality of the pulse was unaffected.

Respiration: Amytal is a respiratory depressant. Respirations become shallow and slow, but the respiratory exchange is adequate to maintain good color. A few patients showed some pallor and blanching. One patient became cyanotic when the tongue fell back into the throat. Cyanosis was never seen when care was taken to turn the head to one side and to hold the jaw forward. During recovery it was sometimes necessary to keep the tongue well forward. Respirations continued shallow until consciousness returned. Mucus collected in the throat of a few patients and had to be swabbed out.

Urinary System: We found no evidence of disturbed renal function. It is believed that most of the drug is eliminated through the kidneys, but without injury to them. Albuminuria was no more frequent after operation than when ether alone was used. In a few cases in which studies of blood chemistry were made, no change was demonstrable. Some authors state that frequent catheterization is necessary after amytal. This was not our experience. Less than 10% required catheterization, and half of these were pelvis or hernia cases.

Gastro-Intestinal System: After amytal, patients are notably free from nausea and vomit-

ing. Eighty per cent. of our series had not the slightest nausea. It seemed the drug had some specific effect of either depressing the vomiting centre or, as Tatum and Parsons[16] suggest, decreasing the gastro-intestinal secretions. Even in cases where the amount of ether given would usually have caused vomiting, there was no vomiting when it was combined with amytal.

Nervous System: Induction was very placid and without excitement. Partial muscular relaxation occurred about the time unconsciousness developed, but the reflexes were not abolished. The knee and pupillary reflexes varied in activity; the anal sphincter was not relaxed; rarely was there sufficient relaxation of the abdominal muscles to allow satisfactory exploration without a supplementary anaesthetic. The skin reflexes were usually present, so that supplementary anaesthesia was necessary before the skin incision could be made. The restlessness of the recovery period seemed to be a type of reflex activity with some disorientation. There was no delirium. One patient only was irrational for a few hours the day of operation. Morphine usually controlled all restlessness.

SELECTION OF CASES

Stomach and Duodenum: Amytal proved of especial value in certain groups of cases. We used it combined with ether on thirty of the patients operated upon for lesions of the stomach and duodenum. The contrast in their postoperative comfort with that in similar cases where amytal was not used proved its value in the surgical management of such lesions. One advantage is the reduction in the amount of ether required when a prolonged technical procedure has to be accomplished. Our series of cases included three partial resections of the stomach, and one disconnection of a gastro-enterostomy with pyloroplasty for gastro-jejunal ulcer. In such cases, requiring more time than others, patients are spared much of the risk from prolonged anaesthesia when amytal is the basic agent. A second factor of real consequence in such surgery is the freedom from nausea and the distressing effort of vomiting after operation. Only four of the patients vomited and this was corrected by lavage.

Colon and Rectum: Amytal was of value in this group because of the ease of adjusting a progressive depth of anaesthesia to the extent of the technical procedure indicated. Simple colostomy was performed in two cases with the use of amytal alone; in others a small amount of ether was needed, and when the procedures were more extensive, the depth of ether anaesthesia could be varied to suit the operation. In rectal work amytal did not relax the sphincter muscle. We prefer caudal and transsacral novocaine anaesthesia for minor rectal operations.

Thyroid: Amytal was used routinely in the last sixteen cases of goitre and was a distinct help in the management of this group. Nitrous oxide-oxygen gas was used as the supplementary anaesthetic. The apprehensive toxic patient quietly fell asleep and had none of the unpleasant experience associated with inhalation anaesthesia or infiltration of the neck with novocaine. After induction, surgical anaesthesia was reached and maintained with a low percentage of nitrous oxide, so that the patients had a good pink color throughout the operation. Patients with non-toxic adenomata reacted to amytal as other general surgical patients did. The toxic goitre patients, however, required more amytal before sleep came, were more easily aroused by the manipulations of operation, and were often conscious with removal of the gas at the end of the operation. All the thyrotoxic patients were awake soon after their return from the operating room. It may be that with the increased oxidation characteristic of the disease there was a more rapid destruction of the drug. Amytal was unsatisfactory in one of these patients. He had severe exophthalmic goitre with auricular fibrillation and congestive heart failure. After the administration of amytal his restlessness could not be controlled by nitrous oxide anaesthesia. The operation was postponed and done later with local anaesthesia and nitrous-oxide-oxygen-ether. The use of amytal in goitre surgery requires technical skill that assures against injury to the recurrent laryngeal nerve, since it is impossible to arouse the patient after resection of the first lobe to determine whether the nerve has been damaged.

Gall-Bladder and Common Duct: The chief reason for using amytal in these cases was the ease of induction and the comfort of convalescence. In difficult common duct cases requiring prolonged anaesthesia it reduced the hazard of surgery by allowing the use of a minimal amount of ether. Amytal was helpful in operations on jaundiced patients, because the reduced amount of ether limited the toxic effect of the anaesthetic on an already damaged liver.

Gynecological Cases: In the intra-abdominal procedures amytal had the same advantages as in other general surgical cases. For the minor perineal procedures amytal was not practical because persistent reflexes caused considerable restlessness and disturbance of the position on the table. For more extensive perineal operations, such as the vaginal interposition operation, or vaginal hysterectomy, amytal was again of value in reducing the amount of supplementary ether required.

Genito-Urinary Cases: Amytal is unsatisfactory for cystoscopic examinations. For kidney surgery it had no especial advantages. We did not use amytal for any bladder work.

General Surgical Cases: Such general surgical cases as appendectomies, herniotomies and amputations of the breast are benefited in the

usual way by amytal. Some authors have claimed especial value for amytal in surgical procedures about the head (excepting tonsillectomy). We have not used it for them, but it might be well adapted to neurological operations.

Poor Risks, and *Difficult Technical Procedures:* The poor-risk group of patients is a problem in itself, with any form of anaesthesia. this group of patients and believe that some of them survived operation chiefly because amytal afforded a light anaesthesia and comfortable convalescence. It must be borne in mind, though, that this group is more liable to develop pulmonary edema after amytal than patients who are average risks. Amytal was a great aid in long and difficult technical procedures.

TABLE III.

MORTALITY TABLE

Age	Risk	Operation	Basis of Risk	Cause of Death
70	IV	Cholecystectomy Drainage Common Duct	Jaundice, emaciation Myocarditis	Myocarditis Debility
68	IV	Perforated Gastric Ulcer	16-hour Perforation Peritonitis	Peritonitis
*64	IV	Cholecystectomy	Lues, Jaundice Hypertension	Pulmonary edema Pneumonia
*62	IV	Appendectomy	Gangrenous Appendix Hypertension Cardiorenal Disease	Pulmonary edema Pneumonia
60	IV	Amputation Leg	Severe Diabetes Gangrene	Diabetes Debility
55	IV	Amputation Leg	Severe Diabetes Gangrene	Diabetes Debility
50	III	Perforated Gastric Ulcer	Late Perforation Peritonitis	Peritonitis
47	I	Hysterectomy		Paralytic Ileus (Negative autopsy)
*39	I	Gastro-enterostomy	Gassed in War Healed Lung Abscess	Pulmonary edema Pneumonia
38	II	Nephrolithotomy		Paralytic Ileus Septicaemia

*Only deaths to which amytal could have contributed. Two of these were very poor risks.

ADVANTAGES

1. There is no discomfort to induction. Unconsciousness comes as does natural sleep.

2. Small amounts of supplementary anaesthetics give complete anaesthesia and satisfactory relaxation.

3. Convalescence is more comfortable. Patients are unconscious for an average of four to five hours. They are lethargic for a day or more with reduced sensibility to pain. They have no, or little nausea and vomiting.

4. It is especially useful in gastric, thyroid and some pelvic surgery.

5. It gives a light and lasting anaesthesia which is ideal when a long operation is anticipated. Administered with caution it gives a well-borne anaesthetic and comfortable convalescence to poor risk patients.

DISADVANTAGES

1. Unless a physician anaesthetist is available, its administration delays the operation a quarter or a half hour.

2. In itself amytal is not an adequate anaesthetic. Supplementary anaesthetics are needed to bridge the gap between narcosis and anaesthetic relaxation.

3. Careful nursing is required during the period of unconsciousness to control restlessness that develops as consciousness returns, and to keep the tongue from falling back.

4. Amytal is contraindicated by pulmonary suppuration or chronic productive cough because of the danger of pulmonary edema. One group of patients, elderly men either obese or debilitated, is especially liable to develop pulmonary edema after amytal.

Whatever anaesthetic is used, a certain percentage will develop pulmonary complications. When giving such patients amytal, frequent and careful blood pressure readings must be made because with careless and rapid injection the pressure might fall to a fatal level. They require much smaller doses to produce sleep than the average, so that with careful administration there should never be a mortality from the drug itself. We have accepted the risk with these could be done with but little thought for the amount of ether used. It is striking how long one can operate before there is any appreciable rise in pulse rate when amytal is the basic anaesthetic.

CONCLUSION

Sodium amytal was given intravenously in 130 selected surgical cases. It induced only a basic hypnosis, and additional anaesthetics were

needed to eliminate reflexes and relax muscles. There were no discomforts with induction such as occur with inhalation or local anaesthesia. Ether was always the supplementary anaesthetic except for thyroid operations, for which nitrous-oxide-oxygen was used. The amount of ether needed was less by 25 to 75% than would have been required had ether alone been used. Amytal caused a transient fall of blood pressure which, when necessary, was controlled by epinephrine.

All patients convalesced with much less discomfort than usually follows operation. Nausea and vomiting occurred in only 21 of 130 patients. Patients slept about four and a half hours after operation, and were lethargic for the next twenty-four. They remembered little of the experience on the day of operation. Sensibility to pain was reduced so that they needed little morphine after operation.

Pulmonary edema was the only serious complication. It occurred twice in the presence of advanced cardiac disease, once when there was a past history of lung abscess, and once when there was no such history. Three of these four patients died from pneumonia. It may be noteworthy that only men and no women developed edema in our series. Urinary retention occurred a little more often than with ether alone. Restlessness developed as consciousness returned, but morphine controlled it satisfactorily.

Our series has increased to 170 cases, since this paper was prepared. At present we give only one to two grains of amytal more than are required to induce unconsciousness, and find it is equally as satisfactory as the larger doses.

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CLINICAL EXPERIENCES WITH SODIUM AMYTAL AND AVERTIN AS BASAL ANAESTHETICS*

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RECENTLY investigations have been made and reports published of a vast number of chemical substances said to possess certain definite advantages in the field of anaesthesia. From the number of substances available and from the concentration of effort that is being placed on anaesthetics, one is justified in assuming that there is a definite tendency away from the deeper inhalation type of narcosis and toward more direct methods.

During the past year we have concentrated our efforts on sodium amytal and avertin, endeavoring to find the special field of usefulness for each.

Sodium amytal is a derivative of barbituric acid, chemically known as "sodium iso-amyl-ethyl barbiturate". Reports of its use on laboratory animals were made in 1926[1], but it was not until 1929 that Zerfas reported on its use in man[2]. It may be given intravenously, orally, or by rectum, but in our clinics we have used only the intravenous and oral routes.

The technique of introducing the solution directly into the vein is similar to any other intravenous medication. It should be done under aseptic conditions and with great care, so as to determine the correct dosage for each particular case. The maximum dose for any individual should not exceed 22½ grains, and rarely are more than 15 grains necessary. Experiences in other clinics where full anaesthetic doses were given indicate two rather serious complications following operation, namely, pulmonary edema and postoperative excitement, at times amounting to delirium. Lundy[3] reports that 75 per cent. of the patients at the Mayo Clinic were not excited postoperatively. When delirium occurs it may last from 24 to 72 hours and requires special nursing care during that time. The pulmonary edema probably is due to depressed respiratory activity with lack of proper ventilation of the lungs as a result of a large dose of sodium amytal. For these reasons we have not attempted to give full anaesthetic amounts and have kept our dosage between 7½ and 12 grains, completing the narcosis with nitrous oxide.

The rapidity and ease with which narcosis is induced with intravenous sodium amytal is spectacular and almost beyond belief when observed for the first time. Within three or four minutes of the time the injection is started, it is noticed that the patient has difficulty in keeping his eyelids open, that he slurs his words, yawns, and quickly sinks into a seemingly natural sleep. We have determined our dosage (1) by the amount necessary to produce sleep, using, if the condition of the patient warrants it, from

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1½ to 3 grains more than this amount, (2) by the degree of drop in blood pressure.

We have made it a rule to discontinue injection if the systolic pressure reached 80. In some instances this occurred when only a small amount had been injected and yet this gave satisfactory preliminary narcosis. A case in point was that of a young woman of twenty-five, weighing 110 pounds, to be operated upon for subacute appendix. She was given 10 grains of chloretone by mouth two hours before operation and at the beginning of the injection her systolic reading was 106. The blood pressure dropped gradually to 80 by the time 7½ grains had been given, the patient was asleep, and no more sodium amytal was injected. We completed the anaesthesia with nitrous oxide and obtained as good relaxation with this individual as we had with others who had received 9-11 grains.

There is a great variation in the amount of the drug that is effective in different individuals and although body weight may be a factor, individual resistance or susceptibility seems to play a very important rôle. The vigorous, nervous type of individual, even though he be thin, tolerates more of the drug than the weak, asthenic type.

Another interesting observation in blood pressure occurred in a man sixty years old, weighing 170 pounds, to be operated on for removal of the kidney. His systolic reading before the operation was 170 and during the administration of 9 grains of sodium amytal it dropped to 90. We feel that in this type of case, and in the elderly with arteriosclerosis or hypertension, the degree of fall in blood pressure is much greater than in those whose pressures are within normal limits. In any case, frequent blood pressure determinations are important in the safe and successful handling of intravenous sodium amytal.

The anaesthesia produced by the combination of intravenous sodium amytal and nitrous oxide is far from ideal in the degree of relaxation which it produces. It extends the field of usefulness of nitrous oxide and permits greater ease of surgery than when nitrous oxide is used alone or in combination with morphine sulphate. There is less cyanosis because a greater percentage of oxygen can be used. A patient may do very well during the course of an operation; then if further exploration of the abdominal cavity is attempted, one meets with resistance and even with some struggling. In one case in particular there was satisfactory relaxation during a gastroenterostomy and until the surgeon reached down for the appendix, when there was marked rigidity and straining, and some ether was necessary to facilitate wound closure.

We have used intravenous sodium amytal in only one instance in combination with regional anaesthesia, and this was early in our experience. This patient was given 9 grains and seemed to be in a moderately deep sleep until the hypodermic needle pierced the skin; then she started squirming about on the table, a condition referred to by Dr. Sise[4] as "motor restlessness". She was too far under the influence of the drug to coöperate, and we finally had to resort to nitrous oxide to control the situation. Smaller sedative doses, we feel, are better when local infiltration is to be used.

We have had very satisfactory results from the use of sodium amytal capsules by mouth, preliminary to nitrous oxide and oxygen, for such operations as thyroidectomy, breast amputation, inguinal herniotomy, and others not requiring any great amount of muscular relaxation. For adults we have given 6-9 grains, 1½-2 hours before operation. The average patient falls asleep in one-half to one hour and it is important that everything be done to allow him to continue to sleep. Visitors should be kept out of his room after the capsules have been given and in transportation to the operating room the eyes covered and silence maintained. Although the patient usually wakes up at this stage, he is too sleepy to have the ordeal make much impression on him and the anaesthesia is completed with nitrous oxide and oxygen, frequently without his knowledge, and usually with complete amnesia from the time the capsules were given. In this respect we feel that oral administration is superior to the intravenous routes, because it eliminates the period of greatest apprehension just prior to operation. It is also simpler and less time-consuming. In a small percentage of cases the effect is uncertain, because the dosage for each individual varies, and in one's endeavor to be safe, an insufficient amount may be administered. We feel, however, that the oral method of administration is the method of choice for the majority of cases, and to the small number of patients who show insufficient dosage, morphine sulphate grain 1/6 may be administered in the operating room.

For the past two months we have used only the oral route and although this series of cases is smaller than those done by the intravenous method, the results compare favorably with those in the larger series.

In abdominal operations the relaxation is not ideal, but is fairly satisfactory and is equal to that obtained by the slightly more hazardous and cumbersome intravenous method.

The postanaesthetic effect of sedative doses of sodium amytal has been most satisfactory. Nausea and vomiting have been very much diminished and in most instances absent altogether. Postoperative sleep has been prolonged for three or four hours. Two patients of our series showed some mental confusion and excitement for the first few hours, but this was easily controlled by morphine and cleared by evening of the day of operation.

The attitude of patients toward this type of anaesthesia is worthy of consideration. They are unanimous in their praise and gratitude for the ease with which narcosis was accomplished.

We have been privileged to anaesthetize a few of these patients a second time for other operative procedures, and they have quite insisted that they be given sodium amytal.

Summarizing, we feel that:

(1) Sodium amytal is an excellent sedative preliminary to other and deeper narcosis.
(2) Postoperative nausea and vomiting are very much reduced.
(3) Oral administration relieves immediate preoperative apprehension.
(4) Intravenous administration, while assuring more accurate dosage, is likewise more time-consuming and slightly more hazardous and is hardly justified.

Avertin was first introduced by German chemists in 1926 and later used by English anaesthetists. During the past year fluid avertin has been available in this country for purposes of anaesthesia. It is tribromethyl alcohol, kept stable by the presence of amylene hydrate. Each cubic centimeter of the liquid represents one gram of avertin. It is administered by rectal injection, and the solution is made by adding distilled water at 40° C. and shaking thoroughly. It is recommended that 2½-3 per cent. solutions be used and the temperature kept between 38 and 40° C. When heated above 40° C., it decomposes into dibromacetaldehyde and hydrobromic acid, which are highly irritating to the bowel. Tests for the purity of the solution should be made immediately before injecting by observing its reaction with Congo red. It is detoxicated by the liver and eliminated by the kidneys. It is excreted at a comparatively slow rate; experiments show that between 50 and 70 per cent. is excreted in the urine and recovered as bromine in the first twenty-four hours. Progressively diminishing quantities are recovered until about the seventh day[5].

Patients are prepared as for any other general anaesthetic, receiving a cleansing enema the morning of operation, unless the operation is scheduled before nine, in which case the enema is given on the evening before. One hour before the time scheduled for operation morphine sulphate, grains 1/6 is given and the instillation of the avertin enema begun one-half hour later. The injection may be given in the patient's own room, if he is extremely nervous, or after he has arrived on the operating floor. We prefer to give it in one of the anaesthetizing rooms on the operating floor, feeling that the temperature of the solution is kept more nearly constant if it is not transported to different parts of the hospital.

Dosage is regulated by body weight. We have used 80-100 mg. per kg. body weight in 2½ per cent. solution. This provides a good basal anaesthetic, upon which deeper narcosis may be imposed by nitrous oxide and oxygen. With the patient in the Sims' position, a catheter with funnel attached is inserted four inches into the rectum and the solution allowed to run in slowly by gravity. Unlike the oil-ether colonic administration, the patient experiences no abdominal cramps or discomfort of any kind.

The rectal tube is withdrawn and the patient placed on his back and watched for signs of ensuing unconsciousness. This sets in in a very few minutes and is sufficiently deep in ten or fifteen minutes to allow for preparation of the operating field. Two of our patients have shown a moderate amount of excitement as evidenced by loquaciousness, but the others just dropped off into a seemingly natural sleep. It is necessary to support the jaw at this stage, for relaxation is so profound that the tongue drops back and may obstruct respiration. It is also wise, after the operation is over, to place an airway in the mouth so as to keep respiration unimpeded.

We have used nitrous oxide and oxygen during the first few minutes, or until the initial incision is made and a good operative field exposure obtained. In the lighter forms of anaesthesia, incision through the skin may elicit some response to pain, whereas deeper structures are less sensitive. For this reason we prefer to deepen the narcosis with nitrous oxide during the first few minutes of operation and then withdraw it. In many instances no more nitrous oxide is needed, although it is always possible to add it at intervals throughout the operation, when any deep manipulation is necessary.

Our series of cases, though small, includes such operations as resection of joints, cholecystectomy, herniotomy, appendectomy, pelvic operation, radical sinus operation, cervical adenectomy. In the abdominal operations we have observed greater muscular relaxation than is possible with nitrous oxide alone or in combination with sodium amytal, although the tendency to blow the intestines into the wound is not entirely obviated. In operations outside the abdominal cavity it seems to offer some excellent advantages, especially in the orthopedic cases, because it produces good muscular relaxation for approximately two hours and a long period of quiet following operation.

Patients sleep three or four hours following avertin anaesthesia and have little, if any, nausea or vomiting. Cases of diarrhoea with the passage of blood and mucus following rectal injection are on record and are reported by Lundy[6].

One similar experience may be worthy of note. A man fifty-six years old, weighing 197 pounds and in good physical condition, was given 80 mg. per kg. body weight in a 2½ per cent. solution. Induction of anaesthesia was uneventful and complete in fifteen minutes. Nitrous oxide was superimposed and the operation for removal of the semilunar cartilage completed in forty minutes. He regained consciousness in three hours, though he remained drowsy two hours longer, and for twenty-four hours had no postoperative

discomfort other than pain in the knee-joint. At the end of this time, however, he complained of nausea and abdominal cramps, and for six hours thereafter there was diarrhoea and vomiting of all food eaten. No blood was noticed in the stools, there was no tenderness in the rectum and no further difficulty attributable to the anaesthesia. The only explanation we can give for this reaction is that he was overweight and too much of the drug was needed to fulfill his weight requirements. In obese individuals we feel it is wiser not to give the full amount of the drug that their weight calls for.

The contraindications to its use are conditions of shock and marked debility, disease of the liver or kidneys, or presence of disease of the rectum, the chief disadvantage being the possibility of rectal irritation following its use. Its advantages are ease of induction, better relaxation than is possible with other light anaesthetics, moderately prolonged postoperative sleep, and great reduction in instances of postanaesthetic nausea and vomiting.

Neither sodium amytal nor avertin fulfills the requirements of a good anaesthetic which will produce unconsciousness speedily, safely, and without untoward after-effects. They do, however, offer definite advantages as preliminary sedatives that deepen the narcosis and extend the field of usefulness of some of the volatile anaesthetics, such as nitrous oxide.

Used in this way, sodium amytal is especially indicated in the nervous, apprehensive individual, where only light narcosis is needed and muscular relaxation is not essential.

Avertin, on the other hand, in combination with nitrous oxide produces greater muscular relaxation over a long period of time, but is more toxic and has a more limited field of usefulness.

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SOME AIMS OF MEDICAL EDUCATION

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(Continued from Page 318, Issue of February 12, 1931)

COMMERCIALIZATION, STANDARDIZATION, MASS PRODUCTION

It is stated that commercialization of medicine is taking place. By what standards shall it be judged? To make this determination, it is not enough to show that commercializing influences are at work in medicine today. From what can be learned of past ages and from present knowledge of human nature, one may think this has always been true. Is medicine more commercial than it was fifty or a hundred or five hundred years ago? Who can answer? But even if this difficult question can be answered so as to produce conviction that medicine is more commercial now than formerly, the further question arises, is this commercialization part of a general process affecting all activities, a trend characteristic of the period, in which medicine participates, or is it a trend in which medicine is more markedly affected than in some previous period? The answers to these queries lie outside the scope of this essay. It is sufficient for the present purpose to recognize that there is a movement toward the commercialization of medicine. There always have been, and now are, those whose object is to commercialize all with which they come in contact. In some respects many physicians need a certain amount of commercialization. Their business methods are deplorable. One wonders if part of the popularity of the "old family doctor" was due to his sending bills so infrequently and so casually.

There is much that has been accomplished by standardization in medicine: in hospitals, in medical education, in records, in instruments, operations, procedures. There remains much more to be done. It is an important part of the process by which one reaches one's goal easily, simply, quickly. But it must not be abused. Standards appropriate for one set of conditions may be harmful if applied under another set of conditions. This is well known and often forgotten in education. A standard for achievement by memory is not a standard for initiative. A standard for penmanship is not a standard for literature. A standard for success depends on what is meant by success. Standards are necessary, and useful to the extent to which they are properly applied. Harm has been done to medicine by setting up for the physician some standards that are suitable only for commercial success. In the practice of medicine there is much that cannot be standardized.

Recently business has seen a great light: "mass production". Some physicians have seen it also, and all over the country physicians are grouping themselves together, sometimes under the leadership of one dominating personality whose name the "clinic" bears, for the purpose of "group practice". There are several types of organization. In one the dominant

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physician owns all the stock, as it were, and the other physicians are on salary, with bonuses perhaps. In another, the members of the group are coördinate. This is a somewhat healthier type for the development of most physicians. The object is to practice more medicine per unit of time and energy, and so do more good and earn more money. The "clinics" by their financial success, have probably done more than any other influence in recent years to commercialize medicine. They can be medically successful also only if it is recognized that the unit of practice can never be standardized (unless humanity be standardized, which seems unlikely) for it is ministering to the needs of a human being, who is somehow of immeasurable worth.

There are other types of special clinics, like the cancer clinics inaugurated at the suggestion of the Massachusetts State Department of Health, and health associations, sometimes under commercial auspices, which, encroaching on the field of private practice, raise questions that are serious and difficult to answer. What is best for the community in the long run? The experiments by society or by special agencies in society, which are involved in finding out what is best, should be entered upon cautiously, and there should be the willingness to experiment and also to acknowledge that a mistake has been made if the experiment shows it.

SOCIALIZATION

There are several movements comprehended under the term *socialization of medicine* (as of other activities). There is, first, the tendency to widen one's view so that, in any given activity, the beneficial effect, beyond the individual and upon the society in which one lives, is taken into consideration. Such wider consideration and comprehensiveness of view may cause the individual to modify his own activity in the interest of the community. This may be called social-mindedness. Other forms of modification arise through controls exercised by the society, grouped in general under the head of public opinion, social custom and non-governmental agencies. Finally, social control may be exercised through governmental agencies.

Freedom to carry on experiments is not characteristic of governmental agencies, and only one possible outcome of the second group of socializing influences will be regarded as pertinent to this discussion: that is, the turning over of some particular activity to governmental control, as prevention of disease, or health insurance, or medical education, or the practice of curative medicine.

The principles governing the allocation of duties in the healing art are not clear, or, if they are clear, the correct application is not always obvious. Public health is not a field sharply marked off from all other kinds of health. Any disease, or any sick person, may become a public health problem and does so become when it is considered in its bearing on the welfare of the community. In many cases the bearing is insignificant and we say there is no public health problem. Our departments of public health, deriving their primary efficacy from the police power of the state, have long since passed beyond the field defined by that power and have become important educational departments for the prevention of disease. In this country, we still hold that, in general, the state should not enter the practice of curative medicine, although it may care for the insane and the sick poor, the tuberculous, and in some places, patients suffering from cancer. The significant trend is in the direction of increasing the scope of governmental activity in this very field of curative medicine. In Europe, state medicine has developed far beyond what most persons in this country are aware of, along lines advocated here by some enthusiasts. Perhaps the rapid change in Europe is due to its poverty, following the war, but similar tendencies are in evidence in this country. Socialism has been called a disease of mature civilizations.

It behooves all who are directly interested (everyone is indirectly interested) in the welfare of the medical profession to consider carefully the strong trend toward the socialization of medicine and to weigh thoughtfully the merits of every scheme, no matter how promising in immediate results, which looks toward more state medicine. It may be that state medicine will be the best solution for current medical problems. It looks now as though it would give rise to other problems even more serious than those with which the present is confronted.

There has been a tendency to multiply legal restrictions on the practitioner of medicine. That the physician should be licensed by the state before he can practice is generally conceded to be wise. In some states he must re-register with the county or town clerk where he proposes to practice. In certain states he must re-register every year, so that the state may be sure he is not dead. It is said that a number of deceased physicians are still practicing in Massachusetts. The actual evil is that when a physician dies, some unscrupulous person appropriates his license, moves to another community and begins to practice. Of this illegal act the state may never become cognizant.

There are restrictions on the drugs that a physician may use. He may not prescribe a "narcotic" except in minute quantities mixed with other drugs, unless he has special permission to do so. Also he may not prescribe alcohol unless specifically licensed for that purpose.

Multiplicity of legal enactments is often an example of misdirected energy. The state should determine carefully, not casually, that the candidate for licensure is qualified to prac-

tice medicine and is the right kind of person to be entrusted with the great power and responsibility of the physician. The law varies from state to state. It permits several kinds of practitioners of the healing art. There may be those whose only resources are "to pull and push and kick and knock", up through the various grades of material and mental equipment to "real" doctors, some of whom can do anything anybody in the lower grades can do, besides using drugs and like poisons, but cannot prescribe alcohol or narcotics. The highest group in the hierarchy consists of those who may prescribe alcohol and narcotics, but only within the limits set by certain legislators who, perhaps, were quite innocent of any scientific knowledge of any drug.

CULTS

It has been said that men are generally right in what they affirm and wrong in what they deny. By a careful placing of limitations and by a judicious selection of examples this formula may be used to explain part of the power of the cults. Most cults contain a germ of truth which is the basis for accomplishment, but this germ does not always lie just where it is claimed to be. The tendency is to judge the cult or its doctrines by what its advocates claim, and if the claims are found to be false, to reject it as worthless. The confidence of the advocate is often misplaced and his zeal misdirected.

Homeopathy, for example, has made a distinct contribution in the development of modern medicine. The leading doctrine of that cult, *similia similibus curantur*, finds support in the primitive belief in the efficacy of "the hair of the dog that bit you", in the treatment of dog-bite; in the fact that overindulgence of certain types produces sometimes a lasting reaction against that type of indulgence; and receives scientific confirmation in the use of relatively small quantities of bacterial toxin in the production of certain types of immunity and in certain types of vaccination. But as a general comprehensive theory in the treatment of all diseases, it has no scientific foundation. The contribution of homeopathy has been, not in the field of vaccination and the diseases caused by germs, where, indeed, many homeopathists have denied the etiological efficacy of germs, but in directing attention anew to the healing force of nature, in checking the abuses of polypharmacy and the drastic treatment by bleeding and purging so widespread at the time of its origin. The error lies in holding to the wide applicability of a theory of very limited scope.

Again, in the little understood but much talked about relations of mind and body, it has been found, at times, that diseased mental states apparently produce disease of the body. Some persons have jumped to the conclusion that all disease of the body is due to aberration of the mind. The apparent excellent physical health of some frankly insane persons calls for special explanation on this basis. The error here again is in considering a theory of very limited scope to have wide applicability.

In one sense, the group of mind cures may be regarded as a reaction against a mechanistic view of humanity and of the world. Some of these mind cures are just as mechanistic as their opponents' views are supposed to be, but they use a different mechanism. Disease is due not to a material force or element in the body but to a perverted idea in the mind. If one picks up this perverted idea, takes it to the window or to the drain, drops it out or in and puts another, sound idea in its place in the mind, the trick is turned and *you are well*. "The healing work is done." Reiteration of this phrase will prevent a back draft from the window or reverse peristalsis from the drain. It is pitiable to see at what straws men and women in distress will clutch when there are close at hand floating spars and even lifeboats.

The error of the cults is obvious. A part, it may be a very small part, is mistaken for the whole, and there is attributed to the whole the efficacy of the part. The part may be good, often is good within narrow limits. The wrong attribution is due to ignorance and prejudice, is often dangerous, and to an extent not generally recognized proves fatal.

Beyond the honest and sincere, but ignorant and narrow-minded is the dishonest, the quack. The basis of the cult, narrow scientifically, provides ample room for quackery. It is not that the cults produce the only quacks, but the temptation is almost irresistible to slide over the edge just a little (the scientific basis is *so* narrow) into what is not quite honest. If the patient is likely to recover in any case, in time and in hygienic surroundings, how easy it is to speak with assurance as to his "cure", to thump his back, bend his ribs, crook his neck, pull his leg (this is not a figure of speech), rub a few "vital" centers, reduce a few "dislocations", tingle his nerves with electricity, insist that he is well or will get well, according to the healer's point of view, and collect the fee. However inappropriate some of these procedures may be, the last is applicable in every case. It is especially important to give the air of personal sympathetic attention. Some mental quirks are easily corrected by an opportunity for mental self-catharsis. "Wonderful! And he never gave me a bit of medicine. After all, there is a lot doctors don't know."

The scientific objection to the cults is that they make no effort to find out what was the complete set of pertinent conditions under which the disease arose, and what are the conditions existent at the time the patient presents himself for treatment. Of diagnosis they have no rational conception. The fact that the physician

lapses occasionally is no justification for the systematic pursuit of error by the cult.

Most of us have a latent belief in magic in so far as our own health is concerned. We want to do as we please, and if the result is unpleasant, we expect a pill or two to make us well. What most of us need is a little preventive medicine (some of us need a great deal) over a long period of time. We expect to lead hygienically insane lives and have sane bodies and sane minds. We may escape formal incarceration in Bedlam, but many of us at large are mad, quite mad.

PREVENTION OF DISEASE

One of the most transforming influences in modern medicine has been the enlargement of the conception of disease as a process. The conception is not new, but largely through the discovery of the etiological significance of microorganisms in disease, knowledge has extended far beyond the disease itself. For example, malaria is a disease of human beings due to a plasmodium which is introduced into the blood of the patient by a certain kind of mosquito. Part of the development of the germ, apparently of necessity occurs in the mosquito before it can produce the disease in human beings. The germs of malaria, as such, are hard to catch if one wishes to destroy them, but the destruction of the mosquito is comparatively easy. So malaria and yellow fever were controlled and the Panama Canal was built. Thus the application of effort at an early stage of the process which culminates in disease prevents the disease. More and more are efforts being directed to detecting earlier and earlier stages of these disease causing processes, for herein lies the hope of preventing disease.

Perhaps some day the idea of prevention will dominate medicine. An effort has been made to have it permeate all medical thinking by raising the question, and getting medical students to raise the question in regard to every case of illness, How could this have been prevented? It is a pertinent question to have raised, but as yet too little is known to make it a very fruitful procedure, for the answers are not to be given offhand. Often long patient study will throw very little light on the diseased condition, as in high blood pressure, rheumatism and cancer. It may be that, as we learn to prevent one disease, we shall discover another, or be discovered by it. Yet the progress of medicine in the past hundred years justifies a restrained optimism concerning the future.

COSTS OF ILLNESS

That all is not well in the world of the healing art is apparent to every thoughtful person who considers the situation. What is wrong is not clear at first glance, for several things seem wrong. Some might think it "all wrong". Anyhow it is very expensive to be sick, and the preventive crank says, "Don't be sick." Some kinds of disease cannot now be prevented, whatever the future may hold in store for humanity, and, besides, some of us insist on our inalienable right to be sick and no one shall stop us. Some persons even "enjoy poor health". A determination of facts concerning the costs of illness has been deemed necessary, and for some time an attack along this line has been in the making. The Committee of the Costs of Medical Care, headed by the Secretary of the Interior, Dr. Ray Lyman Wilbur, is directing the attack. On the Committee are physicians and laymen qualified to make a scientific determination of certain pertinent facts. Nearly two score of studies has been planned and some of the earlier studies have been published.

It is not the purpose of the Committee to restrict its enquiries to doctors' bills, which are very properly a part of the cost of illness, but it will consider all the costs of illness, to the individual and to society, so far as can be determined, including such items as hospital costs, nursing costs, medicines, the patent medicine business, drug-store prescribing. No such compilation has ever been attempted before and the publication of the results of the enquiry is awaited with profound interest. When the information is available, a beginning may be made in planning rationally what to do about the situation that is revealed.

PART II. THE SOLUTION

MEDICAL EDUCATION

There have been chosen for comment certain trends, selected from among the changes going on in medicine today, as being of greater significance. They are circumstances in the midst of which the physician must practice, currents and countercurrents through which he must direct the boat of his own life. It will be appropriate to consider next the system of medical education, the device now employed in preparing the candidate for his life work. It also will show trends and changes, almost as it is reviewed. As was said in the introduction, discussion of educational problems from the merely technical point of view will be avoided, so far as possible.

One often hears the statement that the progress in medical education in the past twenty-five years exceeds that in any other branch. Perhaps it was in dire need as today it does not appear to be remarkably in the lead. In any case, great changes have taken place and the most obvious is the disappearance of about half of the medical schools which were in existence in 1905, by the elimination of the "unfit". The most significant change, however, is that nearly all of the medical schools of today are connected with other institutions of learn-

ing, for the independent (and proprietary) school has almost disappeared. Lest anyone think a serious loss of liberty is implied, it is well to add that independent here means independent of university affiliation. The schools have become so-called university schools of medicine. The term so-called is used because, although association with the university has taken place, permeation by the university spirit is not characteristic of the average medical school today. The difference between a university department and a department in an old-fashioned (perhaps contemporary) medical school needs to be emphasized. Of this more will be said later.

It is sometimes said that the standards for admission to the medical school today are much higher than they were twenty-five years ago. By this is meant that the average level of minimum standards is much higher. Nearly forty years ago, the requirements for admission to a university school of medicine were actually four years of college work, with a degree, such college work including one year of physics, one year of chemistry and one year of biology; and a reading knowledge of French and German. There the formal requirements have now risen to two years of chemistry, which does not seem like a remarkable degree of progress for the space of one generation. Actually there has been a greater change than appears on the surface because of the great demand for medical education and the severe competition for the places in the schools, so that now no medical school of good standing accepts less than two years of college work, which must include a certain number of "hours" (formal credits) in physics, chemistry and biology. In spite of the great rise in the minimum standards for admission, there are at least four times as many applications throughout the whole country as there are places in the first year classes of all schools. This does not mean an overwhelming flood of really well qualified candidates. Probably few students of this character would fail to get a place in some good medical school. But since it may be impossible to enter the school of one's first choice, multiple applications are made, some candidates getting their reward only after thirty-five applications. For certain schools of unusual merit, the number of candidates is not so great relatively as the standing of the school would lead one to expect because it is known that only candidates of a high degree of excellence will receive any consideration at all.

The general adoption of higher standards, by which is meant standards of scholastic attainment as determined by time spent in college, has been accompanied by a raising of quality on account of the pressure of numbers, which makes selection more difficult, and by a distinct improvement in the type of student, chiefly in the institutions where the improvement was most needed. The evils of standardization, however, were not avoided and a deadening rigidity of the curriculum has acted as a drag in the movement of adjustment to new conditions. Just now more flexibility is in process of introduction giving the students more freedom, with corresponding improvement, as no lowering of standards accompanies it.

As the methods of work in the medical school have changed under the influence of the university, there has been a greater demand on premedical education: the student must come more nearly prepared in method and spirit of work for the higher demands to be made upon him. The pushing back into the college, of elementary physics, chemistry and biology is but a manifestation of the tendency to regard the work to be carried on in the medical school as more and more closely identified with medicine. The influence on the teaching of these premedical subjects has been marked until now the minimum requirement is collegiate work (high school courses not accepted) of as high grade as any collegiate courses. The "substandard" courses in preparation for medicine are no longer tolerated.

The influence of the university on specific courses in the medical curriculum has been more important, though rather late in spreading in this country. Anatomy may be taken as an example of all the medical sciences. In general it was true that in medical schools anatomy was pursued as a study useful for the physician, especially in surgery, but as having little further interest. It was dissecting-room anatomy that was studied, some histology from the same point of view, and little, if any, embryology. The influence of this practice was deadly so far as the science of anatomy was concerned. In Europe anatomy was first set free from the domination of the narrower needs of the physician, and with the other medical sciences put upon a permanent foundation of independence and freedom. The movement toward independence may have been carried too far, but the wonderful growth because of the freedom has more than compensated for any temporary disadvantage. American universities have learned especially from Germany and now some of the university departments of the medical sciences in this country rank with the best in the world.

In the assimilation of the medical school, the university has had attacks of indigestion and the question has been raised as to whether assimilation can ever be complete. This raises the query, what is the idea of the university that constitutes the controlling factor which has changed, and is still changing medical education in this country? The situation can be described concisely at the risk of some misunderstanding, however. The aim of the university and of the medical school is primarily the same, it is to teach. It is in what is taught that the dif-

ference arises and the divergence of aim appears. The university aims to teach "pursuit of knowledge"; the medical school adds "and its use". There is a difficulty here, but it is not the difficulty of contradiction of aim. The analogy of a present-day geometrical conception indicates something of the distinction that appears. If one compares three types of educational institution, one may say of the library, which is for the pursuit of information, that it is of two dimensions, it is superficial; of the university, it is of three dimensions, it is solid; of the school of medicine, it is of four dimensions, it is life itself.

It is this difference of aim that has given rise to a problem which has not reached a solution satisfactory to all involved. This is the problem of assimilating the departments of clinical medicine in the university. In general they have not been assimilated and although the "full-time" system for clinical teachers is one solution that has been suggested and tried in various forms, it has not given widespread conviction as to its unqualified success.

The idea of "full-time" clinical teachers had been thought over for several years before a practical scheme was launched, but it was unfortunate that at the start there were advocates of the scheme who claimed that some such device was necessary because of the mercenary character of most clinical teachers. They were so eager to make money, it was alleged, that they would not devote themselves to teaching as did some of the men in the laboratory branches. The tactical error was exceeded by the error in truthfulness: the charge was simply not true and it diverted attention from the real problem, which concerned the finding of a new and better method, if possible, for accomplishing the purpose of the medical school. The successful practitioner, who reaches distinction in the pursuit of knowledge and the use of it, is ordinarily distracted from investigation and teaching by the demands which patients make on his time. This is especially true if he is called out of town frequently in consultation. The problem is to free him from these distractions (if he wants to be freed). One solution is to forbid such distractions to the university teacher of clinical medicine, but prohibition by ordinance of things that seem in themselves to be excellent does not make for the healthiest situation. Another solution is to say in substance, "Your job is to teach in this medical school. We expect you to do it in the best way you can. Whatever we can supply in the way of equipment is yours. Go to it." The teacher is free to be distracted or not, as he desires. If his teaching is not satisfactory, the university should be free to make a change.

There are a considerable number of men in medicine with distinction of gifts who would gladly give up the distractions of consulting practice here, there and everywhere, if given the opportunity to limit their work to teaching, research and practice in one hospital. The question of adequate income may be decisive. What is an adequate or reasonable income for a teacher, who, doing almost the same kind of thing in practice without teaching, might receive from five to ten times as much income each year? Perhaps the conditions under which one works are as important as the financial reward.

The designation "full-time" is unfortunate, for it has carried an atmosphere of invidious comparison. A university professorship does not, in general, by rule forbid the earning of money outside of teaching students in one institution. There is, to be sure, at least a moral obligation not to permit undue distraction from the teaching. The same conditions should be allowed the university professor in clinical medicine. The university should create positions that are attractive to the kind of men they want, and it is worthy of note that while adequate income, whatever that may be decided to be, is necessary, it is only one, and perhaps not the most important, of the factors that have to be considered as making for attractiveness in a teaching position. The problem is difficult but not too difficult for solution, and the experiments now in the making in various parts of this country are throwing light on several aspects of the problem. The great need in medical (as other higher) education today is teachers. There are needed teachers who will pursue knowledge, seeking out new knowledge wherever it can be found, and who by their example will inspire and teach others to follow in their footsteps, by devoting themselves also to the pursuit of knowledge and the teaching of their own pupils.

Under our American system of organization, administration has become a serious problem for the teacher. If a man has reached distinction on account of research and is made head of a department in a university, it may be that his duties of administration, in his own department and on various committees of the university, will so burden him that investigation becomes impossible. Occasionally one hears heads of departments complain truthfully that it takes so much time and strength to run the department and teach, that they have no margin of strength for research. It is not quite fair to say, "Let them learn to administer." The type of mind that has the gift of insatiable curiosity rarely has the gift for attention to administrative details. The man with great gifts in research may have a very badly run department, and the situation is accepted with comparative equanimity because he makes signal contributions in the pursuit of knowledge. It is the man of slighter but still real gifts who may be utterly submerged by the burden of routine. This is a problem for the heads of departments to solve,

not entirely by themselves, but with the help of the administrative experts of the institution. Did not Sir James Mackenzie say that one of the uses of instruments of precision is to show us how to get along without them? May not the same be said of administration? The aim of administration is not to exalt itself but to enable the teacher to teach more effectively.

MEDICAL SCHOOL AND HOSPITAL

The relation of the medical school to the hospital exhibits many variations. France, England and the United States show three extremes, though these and other countries show intermediate situations. In France it is characteristic that medical school and hospital have no organic connection. In a characteristic British relation, the medical school is part of the hospital. In the United States one finds occasionally the hospital as part of the medical school. But whatever the organic relation between hospital and school, the hospital is regarded as a necessary part of the scheme for medical education.

There are difficulties in the way of making the hospital part of the medical school. The cost of maintaining the hospital, which, a few years ago, might have appalled the academic mind, is met by special endowment for the hospital and not out of general university funds. The question as to whether it is properly a function of the university to care for the sick is answered by the reply that each department must maintain its own laboratories and of the laboratories of the medical school, the hospital is the most important. It has been found that hospitals affiliated with medical schools, or in which teaching is carried on, give, as a rule, better care to their patients than do others, so that there has been a willingness on the part of both hospital and school to coöperate, often with definite affiliation.

For many reasons the cost of medical education has been rising rapidly until it is one of the most expensive of all forms of education. This is due, in large part, to the changes in procedure. Teachers of medicine are becoming aware of the discovery of the art of printing and the formal lecture has nearly disappeared. Its character has changed so that it supplements the textbook, by giving information not found there, or by interpreting and evaluating material already known. Within its limited field nothing can quite take its place. But the difficulty of attaining excellence within its limits has caused the procedure to become almost extinct in the medical school. Instruction by lecture to two or three or even five hundred pupils is relatively inexpensive. Instruction by demonstration, where the group is smaller, increases the expense as the size of the group is diminished and as the material used in demonstration is increased. Instruction in smaller groups in the laboratory, sometimes individual instruction, is more expensive still.

If the medical school has an annual budget of a million dollars, and the total enrollment of students is three or four or five hundred, one wonders how that amount of money can possibly be spent in teaching. Of course it is not spent in meeting instructional costs. The physical plant of a medical school is expensive to run. The modern laboratory makes a heavy burden for the treasury and every department must have its laboratory. The introduction of the laboratory method of teaching has been the chief factor in raising costs. The man of medicine must be a student of books as well as of things, all his life, and the library of the medical school, if suitable for workers in books is an unexpectedly large item in the budget. One notes also that investigation and research claim explicitly or implicitly a considerable share of the income and one asks naturally what they have to do with teaching. As the connection is not immediately clear to all, the claim has been made that the cost of research is not strictly chargeable against medical education and in the budget should be noted separately. If this notation can be made, there is no objection, as it is worth while at times to get as detailed information as possible concerning all financial transactions connected with the medical school. Also, if one adjusts the charge upon the student (tuition) on the basis of approximate instructional costs, certain researches may not be charged against the student. But the extreme view that because research does not always claim the participation of the student, it is not necessary and the school should be run without it is a remnant of the dark ages of medical education.

The university teacher is a seeker after knowledge, striving to enlarge its boundaries for himself, for his pupils, for the world. He endeavors, not merely to impart information, but to make his pupils share with him in the pursuit of knowledge. To some extent they may see knowledge grow under his hands. This suggests why it is necessary to charge the cost of research against medical education. The university teacher must have the opportunity for research just as he must have the opportunity for physical sustenance, to keep himself alive.

The allocation of costs presents some difficulties. How much shall the student pay? There is a tendency to raise the charge for tuition toward an approximation of instructional costs. As this proves a financial burden for some students, there is a tendency to provide loan funds, sometimes outright gifts (scholarships) for students of promise. The loan comes from a revolving fund and is to be paid when the graduate is earning an income. There is a widespread feeling that the student should pay a

larger share of the actual cost than he does at present.

It is to be expected that the complaint would be made that medical education has become so expensive that the poor boy has no chance: medicine is for the rich alone. An examination of the facts shows that this complaint is not justified. To an astonishing extent, students are working their way through medical schools. The fact that the school authorities tend to discourage the taking of certain types of work has been interpreted as another manifestation of discrimination against the poor boy. The basis for this tendency is the fact that the medical course itself presents such a severe strain on most individuals that they have no time or strength for steady outside employment. Their health is likely to give way and it has been found that as students advance from college through medical school and into internships in hospitals, their health habits are likely to become progressively worse.

It is a fact that medical schools are eager to get students of real promise, and if such a candidate presents himself, will often make considerable effort to see that entrance to the school is possible, so that any instance of alleged discrimination on account of poverty should be scrutinized very carefully, before it is accepted. It is true that many poor boys, as well as those who are not poor, desire to study medicine and are not accepted by any school of good standing, but the discrimination has other basis than the condition of the pocketbook.

The faulty distribution of physicians, too many in the city and too few in the country, has been attributed to the rising costs of medical education. The solution proposed for this problem is to have a second class of medical schools, with earlier age and lower standards for admission, and less rigid and less costly training. The product would be a sort of rule-of-thumb practitioner. The theory is that this lower grade of physicians would go to the less densely populated districts and be able to make a living. Such statistical studies as have been made, bearing on the distribution of practitioners of the healing art, indicate that the character of the training makes little difference in the flow toward the city, good doctors, poor doctors, members of cults, quacks, all seek the city. If there is any difference at all, it seems as though the inferior grades tend to seek the city in larger proportion. This is what one would expect, after all, because in the country the practitioner is so likely to be known promptly for just what he is; in the city the poor practitioner has a better chance of keeping under cover.

European experience in this matter is interesting. Substandard physicians for rural practice were formerly trained and recognized in Austria, Great Britain and the Netherlands. In the Netherlands such a physician "was obliged to confine his practice to rural communities". Recognition of the training for the inferior grades of practitioners was discontinued by these countries in 1872, 1886 and 1860 respectively.

In Sweden the length of the entire medical course is ten years or more. "The opportunities in the course are probably the greatest in Europe. . . . Many believe that the recognized course is unnecessarily long but the authorities are aware that most of the students will go into communities where they will be called upon to meet every type of medical problem . . . and they are unwilling to take the responsibility of lowering the present requirements which they believe are necessary to meet the conditions of medical practice in Sweden." These European answers to the problems for which we are seeking solutions are pertinent in view of the suggestions that are made from time to time in this country, looking to the establishment of training and recognition of a group of substandard physicians.

The quotations in the two preceding paragraphs are from the latest report of the Commission on Medical Education, which is headed by President Lowell of Harvard and consists of several presidents of universities which have medical departments, a group of administrators and teachers in medical schools, and a group of other physicians not formally engaged in teaching, representatives of state boards of registration in medicine. A five-year study of medical education was planned and is in the making. Several reports have been published and it is expected that a review of facts disclosed will, in the final report, lead to significant constructive suggestions.

THE MEDICAL SCHOOL

The medical school and its curriculum must be considered briefly. The selection of just the right candidates for the medical school presents a perplexing problem as there are so many apparently well qualified and deserving applicants, for most schools more than can be accepted. One tries to find out as much as possible about each candidate, by transcript of record in preparatory school and college, by photograph of the candidate, by letters of recommendation in reply to enquiries from the medical school and not offered by the candidate, by confidential information from some physician who knows about the candidate at home, by personal interview with some one from the administrative staff of the school or some trustworthy graduate. The letters of enquiry sometimes contain the question, "Do you think the candidate will make a good doctor?" for often a large amount of information not bearing on that point is included in the reply. From the group formally qualified in every way the most promising candidates are selected.

The experience of selecting candidates is illuminating. On one occasion there came to the office an Oriental who brought a letter of introduction (not recommendation) from a friend of the dean. The candidate was a fairly successful merchant approaching middle age. He insisted that if the dean approved, the committee on admissions would accept him, although it was pointed out that his lack of formal education beyond early years in the high school presented a serious obstacle. As he rose to go, he intimated by signs that he wished to communicate something out of the hearing of the secretary who was at her desk nearby. In the waiting room he said, "Doctor, you can take me in if you want to; I will give you eight hundred dollars."

The emotional appeal is more difficult to meet because a curt "No" sometimes seems brutal. A widow, whose dress suggested a restriction of even the comforts of life, was pleading for her boy, for whom she had made sacrifices that he might have his premedical education, and ended with these words: "He is a good boy; he won't lie; he won't steal; he's no good for business; he *must* study medicine." She did not know that during an examination a proctor had found the boy with a crib.

Some years ago there was devised a new method of selecting candidates, the final outcome of which could not be determined for a long time. The logic of the scheme is interesting and simple. Presumably doctors, lawyers, business men succeed because of certain qualities. Can the qualities be determined and are they different for each group? If they are different, by picking for the medical school candidates who show the qualities that characterize successful physicians, the problem is solved. A long questionary was sent to groups of successful doctors, lawyers and business men. It was found that there were fairly characteristic group reactions. Physicians were, in general, interested in the freaks in the sideshows at the circus. Lawyers showed little interest in this matter. Physicians showed distinctly greater intolerance for the opinions of other people than did the lawyers. It is an interesting suggestion and perhaps has since been developed further. The idea should not be tossed aside too lightly. There may be something in it.

In general, a serious and sincere effort is made to find out everything possible about the candidate because, on account of the pressure of numbers, selection is necessary, and it is clear that the transcript of the student's scholastic record gives an inadequate idea of his fitness to study medicine and to shoulder the responsibilities of the physician.

When the student is once admitted, what shall he be taught? Manifestly it is impossible to teach him the whole of medicine, or even to consider, however briefly, every subject that falls within its purview. Only parts of certain fundamental sciences, and only certain aspects of clinical medicine, can be studied. With the multiplication of specialties in science and in practice and the insistence of the specialist on the fundamental nature of his specialty, the medical curriculum reached a parlous state a few years ago from overcrowding. Now a judicious pruning is bringing it into a more healthful condition. Since the purpose of the medical school is to train for the practice of medicine, a certain balanced minimum of required studies seems wise. Beyond this minimum the student is given some freedom of choice.

In what order shall the student take up the various subjects? Does the order make any difference? The procedure which has proved very successful in comparison with the rather unsystematic arrangement which it has superseded is known as the concentration block system. Its logic is simple. The pupil begins with a study of how the machine is put together, or normal structure (anatomy, histology, embryology) and pursues it with a fair degree of thoroughness. He then takes up how the machine works, or normal function (physiology, physiological chemistry and some pharmacology) and studies it with some degree of correlation of function with structure. He studies next diseased structure and function (pathological anatomy and histology, pathological physiology and more pharmacology). Finally, he studies disease as exemplified in patients in the hospital and in the out-patient department. There might elapse a period of two years between the study of anatomy and its application in the study of the sick person. This is an obvious defect and there has been a tendency to modify the order somewhat by introducing clinical studies a little earlier in the course. The block system has tended to emphasize unduly the content of the block and to overlook the relation between blocks so that correlation has not been apparent. Correlation courses and correlation of courses are being introduced to meet a serious need. A basic difficulty about teaching students correlation in their work has been a lack of sound knowledge in the fundamental sciences on the part of the clinical teachers. If the teacher does not and cannot correlate, the student is less likely to do so. There is another tendency in correlation in process of development which will be considered in the final portion of this essay.

Of the methods of teaching, it may be said, first, that the formal lecture has almost disappeared. It would be a distinct loss if it were to become obsolete. The book, other than the textbook, grows in value and the library will perhaps come into its own before many years. The demonstration rises and falls, a useful, even necessary procedure, the utility of which has been increased greatly by the moving pic-

ture. The cinema has become even a contributing factor in scientific research, its photographic record bringing to light hitherto unsuspected stages in vital processes.

But the characteristic method of modern medical education, as of modern medicine, is the experiment. Important as was William Harvey's contribution to knowledge in demonstrating the circulation of the blood, it was far surpassed in significance by the contribution to scientific method which he so firmly established in that demonstration.

Just now the laboratory, in the narrower sense, seems to dominate medicine. Some think it desires to dominate medicine, and one hears occasionally the sound of battle between "scientific" and "unscientific" medicine. But it is to the laboratory, in the larger sense, where the test by controlled experiment can be made, that everything must be brought and tried. This means the hospital or clinic with its patients, and includes the rooms with chemicals, glassware, balances and other apparatus to which the term laboratory is often restricted.

It is by the combination of demonstration and experiment, of watching the expert at work and doing things himself, that the student gains insight and power in medicine, as assistant or clinical clerk, or as apprentice to some skillful physician in private practice.

The concentration of attention on certain limited aspects of medicine has had unfortunate results. Combined with this, the isolation of the medical school from the university has tended to narrow its outlook. The cultural side of education has been neglected and several remedies have been suggested to remove this defect which is often seen in specialists. One suggestion is to have the medical school geographically near the university. In so far as isolation of body affects isolation of mind, it may be a pertinent consideration. If there is desire for coöperation, close proximity makes it easier to attain. However, departments separated by only the wall between rooms have been known to be isolated, so the value of physical proximity may be exaggerated.

Another remedy is to have the student in his premedical work take certain "cultural" courses, as, for example, literature, history, art, or music. A third suggestion is to have certain "cultural" courses introduced into the medical curriculum. The remedy has here been correctly formulated; the student should take cultural courses in the medical school, and since the days of Huxley scientists have insisted on the cultural value of science. The cultural value of a course depends not so much on its subject matter as on the way it is taught and studied. This leads to the fourth suggestion, most difficult to carry out but most efficient if practiced, to teach each subject culturally. One does not need to go outside of medicine for cultural subjects, though on medical faculties one may not find a large proportion of cultured minds; well educated, yes, in a sense, and very well informed. But cultured, that is another matter. The cultural teaching of medicine is not an unknown art, but it is an art waiting for artists.

The aim of medical education, as of every other limited field of activity, must find its justification in, and be comprehended by, the general aim of life. "Knowledge for its own sake" and "Art for art's sake" are too often seen in isolation. Emerson, in his essay on the *American Scholar,* says that in the beginning the gods divided man into men that he might be more helpful to himself. So we are all fragments of humanity, belong to fragmented humanity, and tend to have the little, narrow, shortsighted views that beset us all. We need the larger vision, the deeper insight, so that we may find in medicine, as in any other growing together of science and art, the reconciliation of their seemingly divergent aims. The justification of our endeavors is found in this: we seek to know what is true in order that we may do what is right.

As one looks toward the future and to the problems of greater complexity that the physician will have to face in a civilization that is becoming more complicated, almost from day to day, and attempts to formulate the kind of scheme of education that will enable the physician to keep abreast of his time, one recurs to the old assumption that medical education is, after all, largely education, and that education refers to a process of growth and not to a state of passive receptivity. So the scheme of education must not prevent growth and must allow for variation in rate of growth and acquisition of knowledge and skill.

The multiple objectives—information, technic, method, skill, point of view—are gathered together in the comprehensive aim, understanding, and its satisfaction in employing the resources of science and art in dealing with the particular situation, whatever it may be. In seventeenth century religious literature, by way of comment on the speaking of a certain preacher, there occurs a phrase that is apt for describing the function of the physician. "He spoke to my condition", or maybe, "He did not speak to my condition." The supreme test of the physician is that he should speak and act to the patient's condition.

As regards the educational system, the present tendency is to underrate the importance of imitation, especially for the more mature student. Intelligent imitation of a master of his craft is the best way of developing the powers of the pupil in the periods of introduction. The four years in the medical school are after all only an introduction to medicine. The heart of our educational institutions is the teacher. The university selects workers to teach what they are doing, but they must be pursuing knowl-

edge. Mere collectors and disseminators of information are useful and necessary, but they have little place as university teachers. There is a saying attributed to Daniel Coit Gilman, which may be recast in an ancient form: "Now in the university there abide bricks, books, brains, these three; and the greatest of these is brains." The test of a good teacher is not how many of his pupils in medicine, for example, pass the examination of the state board of registration, but how many have stimulated in them the insatiable curiosity, how many have kindled in them the divine spark.

There is, in Baltimore, the famous Sargent portrait of the Four Doctors, from left to right Welch, Halsted, Osler, Kelly; great scientists, great teachers, great men. I think of them as knights, not "parfit", indeed, as being human, but very "gentle" and exceeding "knightly". The appeal to the student, and one may say "is" though Halsted and Osler are no longer seen in the flesh, the most convincing appeal to the student is the knightliness of the Four Doctors, the manhood shown forth in their lives. Students who worked with them went from their presence better men and women than they had been before.

In the medical curriculum the student should study medicine, first, last, and all the time. If he studies anything else, it should be for its bearing on medicine. He should begin with the study of the patient, a person who, with all the implications of personality, is sick; and supplement this by a study of disease in the pathological and clinical laboratories. In the course of the study certain problems in anatomy or physiology will be formulated. If they cannot be solved with the knowledge at hand, recourse will be had to the departments of anatomy or physiology. In this way the student will study in the medical course the applications of the "medical sciences".

It may be claimed that the students are not qualified to take up the study of patients before they have some knowledge of the preclinical sciences. These subjects are not, properly speaking, medicine, but they are, in one sense, preclinical, and preliminary courses should be given in the premedical preparation. However, it would be a mistake to transfer the course in anatomy, for example, now given in most medical schools to the premedical department. The course should be planned for the specific purpose, and should give the student a comprehensive, general and rather superficial knowledge of human anatomy, with an intensive study of a small field, to give some knowledge of technic, some development of skill, some experience with method. It is the personal contribution of the successful teacher to give some insight into what anatomy is all about. If one complains of superficial knowledge, it must be said that landmarks are on the surface and that some knowledge of landmarks is essential.

The preclinical courses, as they are often given, are compromises. One tries to teach the science and its applications without making the application. Enough of an introduction to human anatomy might be given in the preliminary course by enlarging the scope of comparative vertebrate anatomy. These preclinical sciences no longer have to justify their existence by preparing medical students for practice, and their remarkable growth in recent years has been due to their emancipation from the insistence of demand for the training of doctors. The subject is, perhaps, too technical for discussion in this essay, but it would be a distinct step forward if it could be arranged that the emphasis in medical education were changed to *medicine* and the contributory sciences, instead of (as now) the preclinical sciences and clinical medicine (in which the sciences seem to be often forgotten in practice).

This is a significant change that is now going on informally, at least this is the direction of the trend. There are those who advocate turning the medical curriculum "upside down".

The upside-downness would be only in appearance. The preclinical sciences would be put out of the formal medical curriculum, except for their applications. Pathology, in the larger sense, would have its laboratories with the hospital and would be *the* science of medicine.

For American medical education today, there are objectives worthy and unworthy. From the worthy aims some have been selected for consideration in this essay. It may be summarized by saying that the aim of medical education is to give to the student inspiration and opportunity to acquire from the learned his information, from the expert his technic, from the scientist his method, from the artist his skill, and from the humanist the spirit that shall be the guide of his life.

". . . the high goal of our great endeavour is spiritual attainment, individual worth."

MEDICAL PROGRESS

PROGRESS IN GASTROENTEROLOGY IN 1930

BY A. E. AUSTIN, M.D.*

A REVIEW of the literature of 1930 discloses the usual researches into the activity of the organs of digestion, as well as investigation of the various diseases of those parts of the digestive tract prone to them.

THE MOUTH

As an answer to the query why sufferers from gastric diseases have bad taste or no taste, Delhougne[1] has investigated the gastric secretion in those who have lack of taste.

In 8 cases of pernicious anemia with absence of hydrochloric acid in the stomach and diminution of ptyalin in the saliva there was marked diminution of the taste for salt, sugar, hydrochloric acid and quinine; this seemed more marked in the tip of the tongue but was also present on the sides and base.

This is usually less for bitter than for the other tastes but was directly proportional to the degree of subacidity of gastric contents and lack of ptyalin.

Twenty cases of hypoacidity were then studied in 12 of which there was marked diminution of the sense of taste while in 8 it was normal. In the anemias this may be due to an atrophy of the papillae of the tongue, but this was not true of the other cases studied, as examination with a magnifying glass showed no trace of such atrophy. This abnormality was also verified by examination of the sensitiveness to a mild electric current, which gave the same results in the anemias and in half the cases of hypoacidity.

With an experience based on 202 cases of cancer of the mouth, Schürch[2] reaches certain conclusions with reference to early diagnosis and treatment. Of these 148 were cancer of the tongue; in only 49 cases was an abuse of tobacco conceded, usually in the use of pipes, never in that of cigarettes. In only 5 instances had leukoplakia preceded the cancer and there were only 6 women in the group. The average duration of the period between the appearance of symptoms and recourse to the hospital was 4 months. The treatment consisted of surgery, electrocoagulation or radium. Of the group 140 (69%) either died in the hospital or at home shortly after discharge. The author's conclusion is that a cure of more than 18% cannot be expected unless much earlier diagnosis and treatment are achieved than is now possible.

GASTRIC SECRETION AND MOTILITY

Whether there is any difference in the absorption of alcoholic solutions of iodine compounds in sound and diseased stomachs has been studied by Henning and Jürgens[3] in the following manner: a 10% solution of potassium iodide in 30% alcohol was given patients and the saliva was tested at intervals for the amount of iodine which it contained. In each of normal individuals 20 cc. of this solution were passed into the stomach by a Rehfuss tube. Elimination of the iodine through the saliva began in 1 to 2½ minutes and the amount varied from 20-30 mgs.; in one case it rose to 46 mgs. The same method was employed in ten cases of organic gastric disease, including ulcer, but all having an accompanying gastritis; here it was found under similar conditions, that the elimination of iodine varied from 48 to 105 mgs. with an average of 79 mgs. The authors' conclusions are that the mucous membrane of normal stomachs allows the absorption of alcoholic solutions of iodine of varied strengths. The chronically inflamed stomach allows a much more extensive absorption of these iodine solutions.

Oury, Godard and Nichita[4] have examined 59 sufferers from gastric neurosis in whom no organic disease of the digestive tract could be discovered in order to ascertain, if possible, the cause of the pain from which they suffered. While finding no one thing in common they have been able to group these cases under several classifications. The first group comprises those who have hyperacidity and in whom spasm plays a part as shown by röntgenological examination, but occasionally one is found who complains of heartburn with a low gastric acidity and who is often benefited by a few drops of hydrochloric acid. The conditions of hypermotility and hypomotility do not correspond with any one type of discomfort. Another type is the ptotic individual; the displacement of the stomach, however, does not seem to produce the distress, but its association with hypersecretion or hypomotility is evident. The chief victims of gastric pain are the hypersecretors (41 out of 59 examined); as radiology offers no clue to the cause of pain, we may regard hypersecretion as closely allied to gastric pain, if not the cause of it.

The fear that a salt-free diet, or rather one scanty in salt, would disturb digestion by reducing the hydrochloric acid of the gastric juice has been set aside by Eimer[5], who employed foods consisting largely of raw vegetables and fruits, keeping close watch of the gastric secretion by emptying the stomach by the fractional method. By this means the daily consumption of salt was reduced to between 0.5 and 1.5 grams. By means of a control of the urine it was found that the body hung tenaciously to its

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sodium chloride reserve under these conditions, rarely eliminating more than 1 gram daily. Instead of the expected reduction of the hydrochloric acid content of the gastric juice, it was found to be somewhat increased, probably due to the stimulating action of the food.

Glaessner and Wittgenstein[6] have subjected to review the theory of Bálint that the tissues in gastric and duodenal ulcer are more acid or less alkaline than in normal individuals, as shown by the greater time it takes to render the urine alkaline in the former by the ingestion of alkalis. Ten patients in whom ulcer had been demonstrated by the usual chemical and radiologic tests were kept upon an ulcer diet and given, every two hours, 2 grams of a mixture of equal parts of calcium carbonate and calcined magnesia. It was found that in ulcer, it required, on an average between 3 and 11 days to reach a permanent alkalinity of the urine. On the contrary, in a similar number of non-ulcer patients (tabes, diabetes and cholecystitis), it required from 3-10 days to reach this result. Hence from these experiments, it is shown that the prolonged alkalization of the urine is not characteristic of ulcer; in fact, in one case of ulcer, this result was reached in six days. Hence, while the lessened alkalinity of the blood and tissues is probably the reason for this prolonged effort to reach alkalinity of the urine, it is not the cause of ulcer.

Simchowitz[7], employing as a criterion the amount of mucus in the gastric contents drawn through a tube which remains permanently in the stomach during the test using both fasting contents and those following the introduction of tea, has studied various forms of gastritis. To measure the amount of mucus, the quantity of gastric contents which would pass through a dry filter in 30 minutes and an hour with an initial amount of 15 cc. placed upon the filter was employed as a standard. His conclusions were that secretion of mucus is entirely independent of that of hydrochloric acid. Hyperacid gastritis is much commoner than suspected. An increased amount of mucus is found in all cases of gastritis and hence this is a valuable aid in diagnosis. Gastritis is not an independent pathological entity but an accompanying condition in cancer as well as gastric and duodenal ulcer: hence the detection of the amount of mucus is valuable in the diagnosis of these diseases.

Becoming interested by the frequent statement that the determination of the amount of pepsin in gastric juice has no clinical value, Kemper[8] has subjected the various gastric diseases to a new study of the pepsin content and has reached conclusions which he thinks of value. The amounts recorded in healthy individuals do not differ much from those determined by all physiologists, but he found that in the presence of high acid values, the pepsin may be diminished but never absent; on the contrary, the pepsin may be present in normal or increased quantities when the hydrochloric acid is much diminished or absent. The method employed was the simple one of inserting carmine-colored fibrin in various dilutions of the gastric juice. In 17 cases of gastric ulcer, an increased pepsin content was found even when there was no increase of the hydrochloric acid. There was also found in the fasting content of ulcer cases an increased amount of pepsin which would lead the author to think that an ulcer was present even when this was not verified by other means (roentgenogram). In the so-called "constant secreters", where often as much as 250 cc. can be obtained from the fasting stomach (4 cases), this was always found to have an increased pepsin content. In gastric cancer (5 in number) the complete absence of hydrochloric acid was always accompanied by the absence of pepsin; even injections of histamin were unable to promote the slightest secretion of pepsin. In 11 instances of pernicious anemia the complete absence of pepsin as well as hydrochloric acid was noted. In 25 cases of gastritis, either accompanied by an excess or absence of acid, pepsin was found in normal quantities.

Ballowitz[9] has subjected the fractional removal of gastric contents to a careful review, using 130 patients with various digestive disorders for this purpose. The usual method was followed, allowing the tube to remain in the stomach during the length of the test. For incitation of the gastric juice, 180 cc. of a 14% alcoholic solution, which was colored with methylene blue to determine the motility of the stomach, were used. With a syringe 10 cc. of the gastric contents were withdrawn from time to time until the blue had disappeared, and then all the gastric juice was removed that was possible. Expressed diagrammatically, the acidities show various types of curves, which are described as normal, sharp and high, flat, long, and high-long curve. The long-high curve is most characteristic; of 28 of this type, 22 came from duodenal ulcer and 4 from gastric ulcer though 13 of the former and 6 of the latter had normal curves. Hence the author warns us not to put too much dependence on this factor as there are no absolutely pathognomonic curves. The flat curve was found in 8 cases of gastric cancer and in 6 cases of gastritis but, weakening any positive inference from this feature, was the fact that 2 normal stomachs gave this curve. Later, by means of the colorimeter, the author was able to determine just how much of the removed content was alcoholic solution and how much was gastric juice; this did not change the curves to any extent, but showed that the commonly accepted figures for total acidity, 60-70, in normal stomachs are much too high.

In distinction from others who have made such exhaustive studies of gastric secretion, Süssenbach[10] has investigated the peristalsis of the stomach in 87 cases of disease, not necessarily

of the gastro-intestinal tract. His method was the introduction of a small balloon on the end of a Rehfuss stomach tube and verification of its presence near the pylorus by the fluoroscopic screen. Then the other end of the tube was attached to a manometer and air blown into the stomach until the pressure was equal to 15 cm. of water; a registering apparatus was added so that the peristaltic waves could be shown on a drum. An investigation of these indicated that every individual has his own peculiar series of peristaltic waves, but these differ in different persons as to the period of quiescence between the waves, varying from 12 to 30 seconds. Two types were discovered: the normal, which applied to 74 of those examined, while 13 had much more rapid and intense waves. In gastric ulcer the waves were very irregular, slower and much oftener there occurred changes between rest and active peristalsis. It was also shown that "cramps" were only present during a peristaltic wave.

The frequency with which indigestion precedes or accompanies phthisis has led Rave[11] to make a new investigation of 30 patients with pulmonary tuberculosis. The fractional method, with a permanent tube in the stomach and dilute alcohol as an incitant, was employed. His conclusions are as follows: tuberculosis of the stomach is a rare occurrence; dyspeptic symptoms in those suffering from phthisis are hard to attribute to any abnormality of the gastric secretion; however, in advanced pulmonary tuberculosis, only once were normal acid values found; on the contrary, the tendency was always toward a hypoacidity or even an anacidity; in all probability, it is the toxin of the disease which causes the changes in secretion.

It has been the general supposition, from analyses dating back 30-40 years that the acid and pepsin values in elderly people are so reduced that the use of this factor in the diagnosis of gastric cancer is of no value. Hence Poeschel[12] has investigated anew the gastric secretion in 30 individuals who made no complaint of digestive disturbances and whose average age was much above 50 years. His method was the usual one of a permanent tube in the stomach with fractional withdrawal and an incitant of dilute alcohol with methylene blue. Among these 56.6% had complete anacidity, 10% subacidity and only 23.4% normal acidity, with 10% of hyperacidity. No difference could be discovered between male and female, the cases studied being equally divided between the two sexes. The writer's conclusions are that in elderly persons the tendency is toward an anacidity which steadily increases with advancing years, while the number of those with normal secretion grows less and less. The emptying time of the stomach in the elderly varies but has been found generally hastened. He confirms the opinion, previously held, that the absence of hydrochloric acid in the aged has little, or no value, in the diagnosis of gastric cancer.

Trachtenberg[13] experimented on 27 patients whose conditions varied from functional gastric difficulties to gastric and duodenal ulcer; no cancers were included; each patient had the acidity and motility of his stomach determined after 5% alcohol was taken, and 4 days later the same examinations were made after taking a tablet of ephedrin containing 0.05 gm. The results were as follows: (1) Ephedrin checks the emptying time of the stomach, due to a lessening of motility as well as slowing up the passage of the contents through the intestine; (2) the acidity of the gastric juice is not markedly affected, but in some cases of high acidity, it is reduced; (3) the concentration of the neutral chloride is increased by ephedrin. The author recommends the use of ephedrin, therapeutically, in functional gastric disease, hypermotility and hyperacidity accompanied by spasm; gastric and duodenal ulcers which show similar secretory and motile disturbances, especially when atropine fails; spastic constipation and membranous colitis.

Based upon the "acid test" (injection of 200 cc. of 0.5 per cent. hydrochloric acid into the stomach and freedom from pain after same), Palmer[14] has studied a series of gastric ulcers in individuals in whom the diagnosis of gastric ulcer has been established by chemical tests and roentgenological examination. These patients were divided into two groups; one the "alkali group", in whom every effort was made to neutralize all acid in the stomach; and the other, the "acid group", to whom beef tea was given in order to stimulate the secretion of highly acid gastric juice; otherwise the milk and cream diet was used in both groups and effort was made to keep them under the same conditions. His conclusions are that desensitization, that is becoming immune to the injection of the dilute hydrochloric acid into the stomach, occurred in both groups. Stimulation of gastric secretion by beef tea did not stop the healing process. Attempted neutralization of the gastric free acidity definitely favored the healing process as proven by the much earlier date at which the "alkali group" became impervious to the acid test, that is, it produced no pain.

TUMORS OF THE STOMACH

The difficulty of diagnosing benign tumors of the stomach is dwelt upon by Domanig[15], who reports two cases and attempts to give us a method of differential diagnosis between these malignant growths and ulcers. The main features are that in benign tumors, the discomfort of the patient is much less than in the other two; there is no relation to the taking of food; there is absence of periodicity; there is diminished or normal acid values, long duration and absence of cachexia. The roentgenological examination can easily distinguish these tumors,

if polyps, by means of the shadows found with otherwise normal mucous membrane and stomach contours. Blood in the stool is common to both.

The importance of gastric polyps as a source of malignant degeneration is emphasized by Miller, Eleason and Wright[16], who made a study of 8 cases of their own and 24 cases reported by others. Approximately 4% of all malignant disease of the stomach starts from a polyp which, at first, is wholly benign and demonstrates itself by gastric hemorrhage and pyloric obstruction. The results of their investigation are: carcinomatous degeneration of gastric polyp is much more common than generally supposed, having been found in 35% of all the intragastric polyps removed by operation; the benign intragastric polyps that show this degeneration are of an adenomatous character. Most of the patients showing this change are males (83%) and the age is that at which ordinary gastric cancer occurs. Hemorrhages are the most prominent characteristic of the precancerous stage (occult or frank) and their results often lead to a false diagnosis of primary anemia. Roentgenological examination often assures the diagnosis of intragastric polyp and its malignant degeneration may be assumed from the clinical picture. The polyps may be overlooked at operation and the authors recommend a preliminary gastrostomy and a search of the gastric interior with a gastroscope, when a suspected ulcer is not found. A polyp, when found, must be removed with all the care observed in dealing with gastric cancer.

TREATMENT OF GASTRIC AND DUODENAL DISEASES

Anfänger[17] also subjected to critical review the theory of Bálint that gastric ulcer is associated with, and perhaps caused by, a lessened alkalinity of the blood and tissues. He found that, in 12 persons without gastric difficulty, it took from 3 to 8 days to neutralize the urine, using 10 grams of alkali daily. In 5 of 14 cases of established gastric ulcer there was a prolongation of the alkalization of the urine to from 10 to 14 days; in 9 of the ulcer cases, however, there was no prolongation and they corresponded closely to the normal individuals. His final conclusion is that this test has no diagnostic value in the detection of duodenal or gastric ulcer.

Basing his opinion upon 29 cases of perforated gastric and duodenal ulcer, Mühsam[18] urges strongly a resection, if the patient is seen within 7 hours after the catastrophe. In thirteen of these cases there was resection and of these only one died. The advantages of resection over simply sewing up the rent is that no stricture can result, as so often happens with the latter procedure; that the highly secreting part of the stomach is removed and the subsequent secretion of hydrochloric acid is lessened. Free gastric contents in the peritoneal cavity were always found, but this did not seem to interfere with the favorable results of the operation. The necessary gastroenterostomy, naturally, prolongs the operation, but, in the judgment of the author, does not militate particularly against the resection. His conclusions are that with well-nourished and vigorous patients, if peritonitis is not too far advanced, resection is the operation of choice. If the patient is weakened by disease, then the shortest and most sparing intervention, that of sewing up the tear, is to be employed.

Gutzeit[19] pleads strongly for the use of the duodenal tube in the feeding of patients with gastric or duodenal ulcer. Through the tube, milk, cream, butter, eggs and sugar can be poured without increasing gastric juice secretion, and from the examination of the stool, absorption is proved to be as complete as when the food is taken into the stomach. The tube is allowed to remain in situ 2 to 5 weeks. This type of feeding was employed on 15 gastric, 15 duodenal, and 5 jejunal ulcers. Pain ceases as soon as no food enters the stomach and after 14 days the fluoroscopic screen usually shows the ulcer to be healed. The writer's conclusions are: that duodenal feeding causes a diminution in the secretion and peristalsis of the stomach and aids the neutralization of the gastric juice; as the discomfort of the patient is often great, only severe cases, where the ulcer is very resistant to other methods of treatment, should be fed in this way; this method of feeding is contraindicated where there is any suspicion of cancer or where there is pyloric narrowing.

LIVER, BILIARY DUCTS AND GALL BLADDER

The digestive symptoms which accompany cirrhosis of the liver and are usually attributed to this condition have been carefully studied by Gutzeit and Wendt[20], who found that the gastro-intestinal abnormality long antedates the condition of the liver and spleen, and they have advanced the theory that toxins or other noxious substances, produced by faulty digestion, are the cause of the cirrhosis. In all these cases diarrhoea had been a prominent symptom long before the liver condition had brought the cases to the hospital. Both liver and spleen were found enlarged in all instances and neither alcohol nor lues played a part. By determination of the flow of bile and pancreatic juice as normal, the authors were able to exclude these factors as a cause of the diarrhoea and a careful study of the gastro-intestinal tract led them to believe that there was a low-grade gastro-enteritis with the chief centers in the duodenum and cecum. In conclusion the authors insist that a chronic inflammation of the digestive tract has a greater importance in the production of hepatic cirrhosis than has been previously accepted.

The object of Seeber's[21] investigation was to

learn whether one could draw any worthwhile conclusions in disease of the biliary tract which were of clinical value from the examination of the bile and duodenal contents, drawn by a duodenal tube. There were 120 patients investigated in this way, all of whom were suffering from some disease of the bile ducts or gall bladder. Checked by cholecystography, it was found that whenever the gall bladder failed to fill with the contrast material, there was also a failure of the biliary reflex. The determination of the amount of bilirubin in the blood was of little value when there was not frank icterus. The bacteriological examination showed no growth in 18 cases of catarrhal jaundice in the duodenal contents, and when the congestion was sufficiently allayed to obtain bile from the gall bladder, this was also found to be free of bacteria. In cirrhosis of the liver the bile is also found to be free of bacterial growth. Cancer of the biliary ducts was accompanied by a luxurious growth of mixed bacteria in the duodenal contents, but no bile from the gall bladder could be obtained in these cases. The author thinks that the presence of numerous bacilli in the duodenal contents and bile makes a poorer prognosis and is indicative of operative intervention.

Kusnezow and Michailowa[22] are somewhat skeptical over a gall bladder reflex which can be controlled by passing various substances into the duodenum and have tried this method on 18 healthy individuals and 140 patients with various diseases of the digestive organs. The materials injected were solutions of magnesium sulphate, 30%, peptones, 10% and olive oil, 10-15%. The flow from the duodenum was collected at intervals in various test tubes and the change of color noted as well as the bilirubin units. They conclude that the gall bladder reflex is not at all constant either in health or disease. While the introduction of these substances produce an increase of liver bile, there is no increased viscosity, color, or increased bilirubin units to show that any of it came from the gall bladder. Hence, while questioning very much the possibility of emptying a gall bladder by this means, the authors recommend the use of the duodenal tube for diagnostic as well as therapeutic purposes as the procedure does benefit the congested ducts.

Henning[23] has shown, in a review of several cases, that there exists a close relation between cholecystitis and gastric catarrh. In his group some of the cases began as an affection of the stomach, to be followed by marked cholecystitis; in others the reverse was true; hence it is hard to say which was primary. The chief gastric condition is that of subacidity or even achylia with much mucus in the gastric contents; that of the liver is light icterus, an enlarged liver, subnormal temperature and increased serum bilirubin. Duodenal ulcer also showed a marked tendency to produce cholecystitis. The author is not convinced that the juxtaposition of the ulcer and the outlet of the common duct, with the distortion and adhesions of the latter, account for the cholangeitis but that an inflammation exists in the duodenum which extends up the duct causing partial closure by congestion. Further proof of this connection rests on the fact that the ulcer symptoms may cease while the cholangeitis continues and is much more resistant to treatment. The practical value is that, after the ulcer is healed, every effort must be made to overcome the cholangeitis.

First, Schmidt[24] calls attention to the frequency with which attacks of gall stone colic occur during pregnancy (12 cases), or during confinement (38 cases). The author does not believe that stagnation of bile has anything to do with the formation of stones, as his patients have never had urobilinogenuria, as would happen under such conditions. Infectious cholangeitis and cholecystitis he regards as the result of the formation of stones and not the cause. In 5 instances there has been a close connection between cholecystitis and hemolytic jaundice. In 12 cases, stones were associated with gout and there seems to be a causal relation. The author is firmly convinced of the value of the roentgenological examination of the gall bladder after the employment of tetrabromphenolphthalein, but has derived no advantage from the use of the duodenal tube and the direct examination of the bile. As to diet, the precautions should be more in reference to quantity than quality. Some patients stand fat well and others are discommoded by it. Operative intervention should be employed only in younger adults, during the interval between attacks, when no jaundice is present. In great emergencies, of course, these precautions cannot always be observed.

The diminution of the urine in acute yellow atrophy of the liver, a fact seldom recognized, has been studied by Hess[25] in 8 cases in some of which complete anuria existed. This retained fluid seems to be stored up either in the liver or in the tissues. In one case oedema of the face and right arm was very noticeable. It was also noted that any progress toward recovery, in doubtful cases, was always preceded by increase of the urine, with the disappearance of the icterus. Several autopsies have shown that diseased kidneys are not the cause of the oliguria and that they were competent to remove all the water coming to them. The author's conclusion is that there is an accumulation of fluid in the liver and when it fails to retain it, the fluid gravitates to the lungs and the tissues. The autopsies showed in almost every case soft, boggy lungs with excess of blood and fluid, that is, pulmonary oedema.

As it is a commonly accepted belief that primary carcinoma of the liver is extremely rare, Strong and Pitts[26] feel themselves justified in

reporting 9 cases of this rarity in 8 Chinese and one white. Details of autopsy accompany this article. Diagnosis of this disease before death is extremely difficult as the symptoms—weakness, loss of weight, ascites, swelling of the feet and legs, and vomiting with diarrhoea—are so common to other diseases. Jaundice is not constant; early fixation of the liver was found, however, and thereafter the enlargement of the liver was upward toward the diaphragm and not downward. In all cases but one cirrhosis was found to have preceded the malignant growth. Death occurred in three cases from intensive intraperitoneal hemorrhage.

INTESTINAL CANAL

Stepp and Gutzeit[27], after discussing the difficulty of diagnosing duodenal diverticula from the clinical history, emphasize the importance of the roentgenological examination which detects such an abnormality in 2.4% of all gastroenterological investigations under the fluoroscopic screen: of these a majority will have no clinical significance as they produce no symptoms. In 25 cases, however, this anomaly was accompanied by symptoms, chief of which were severe pressing pain in the mid-epigastrium, with anorexia and nausea. In order to exclude pressure on the duodenum by a pathological gall bladder, it is well to fill the latter, if possible, with contrast material, when the pathological status of the duodenum is fully established. Early operation is recommended since the pressure of the diverticulum on the biliary duct, as in one case quoted, may be followed by cirrhosis of the liver, due to backing up of the bile. The smaller of the diverticula are hard to find, especially when placed posteriorly or toward the pancreas, even with aid of the roentgenogram, and at operation the duodenum should be opened and searched carefully.

As malignant growths of the duodenum are extremely rare, it seems worth while to review the experience of Rösch and Gerber[28] with such a tumor. The patient, a male of 33 years, had had crampy pains in the mid-epigastrium for 10 weeks and for several days had vomited bile and food one to two hours after taken. A loss of 20 lbs. was noted; the roentgenogram showed a much distended duodenum ending at the duodeno-jejunal junction, through which stricture, with strong peristalsis, a spurt of contrast material could be forced. Occult blood was constant in the stool. A deeply-lying, tender, pear-sized tumor could be felt under the point of narrowing. An exploratory operation showed a lymphosarcoma. Death occurred 8 weeks later. The authors note that malignant growths do not necessarily select the elderly but may be found at any age.

After describing the inefficacy of alkalis and atropine in resistant cases of duodenal ulcer Landau and Glass[29] propose the use of bromides and chloral hydrate on the principle that the nerves are irritated as in gastric crises of central origin. They used a mixture containing 15 grams of sodium bromide and 4 grams of chloral hydrate, in 200 cc. of water, giving a teaspoonful in half a glass of water, three times a day. Under this treatment the pain became less; vomiting ceased; the appetite improved and blood soon disappeared from the stool. The authors recommend the use of alkalis in conjunction with this treatment and a rigid milk and cream diet. Their conclusion is that the use of the bromide-chloral mixture hastens the healing of the ulcer and makes the patient vastly more comfortable.

Many foreign articles have been found by Oehlecker[30] in the duodenum. The diagnosis is difficult as no history can be obtained from the patients, who are usually insane, and while the symptoms are often of the same character as those of duodenal ulcer and gall bladder disease, it usually requires the use of the fluoroscopic screen to complete the diagnosis. Hairpins, lead pencils, the handle of a fork, a knife and fork and three rings were taken from different patients. Some patients were operated twice for the removal of foreign bodies from the duodenum. The advice of the author is not to wait too long for an operation, especially when the article has a point. If the foreign body passes the bend of the duodenum and reaches the lower portion, it is usually passed per rectum.

The importance of an early and positive diagnosis of pancreatic necrosis is emphasized by Ehrmann[31] because, while in other acute abdominal disasters such as perforation of the stomach or duodenum, and rupture of the gall bladder, an early operation is indicated, in pancreatic necrosis, it is to be avoided. Outside of the clinical symptoms and physical examination, which indicate only a local peritonitis and may be simulated by other acute abdominal disease, the author places great stress on the examination of the blood, which shows in pancreatic necrosis an increased sugar content; a much increased amount of non-protein nitrogen is also found; the diastase is increased in the blood as well as in the urine, while the lipase is also found in much larger amounts than normal.

The difficulties of diagnosing an appendicitis, especially when subacute or chronic, are dwelt upon by Hoch[32] who enumerates some of the adjuvants to the ordinary means of detection, such as having the patient raise the right leg and his inability to maintain this position as long as with the left leg, pain caused by pulling on the right testicle and diminution of the right cremaster reflex. Even the blood count (increase of leucocytes) is not regarded as decisive by the author as any inflammation in that region may cause it. Hence the author, basing his procedure on the theory that the pain and

tenderness at McBurney's point are due to gases in the cecum, pressing on the inflamed appendix, exaggerates this by forcing air into the colon with a long tube and a syringe, using ten bulbfuls of air. With the aid of the roentgen rays it can be seen that the air distends the cecum and increases the patient's pain, as well as exaggerating all the physical signs mentioned above. He declares that his method is particularly valuable in differentiating chronic appendicitis and inflammation of the female adnexa. This method has been applied in 20 patients with doubtful diagnosis and in 16 cases operation and pathological examination have shown a chronically inflamed appendix; even when none of these distinctive points were present, they appeared after inflation. On the contrary, when the inflation did not arouse or exaggerate the right lower quadrant discomfort, it was found to be due to some other disease.

When, by the roentgen ray, a stenosis is found at the caudal portion of the flexure linalis of the colon, it is almost invariably caused by cancer. Schwarz[33], however, reports a case with this peculiarity which, on opening the abdomen, proved to be contraction due to ulcerative colitis. Temporary relief followed a colostomy and at death the autopsy showed complete obliteration of the entire descending colon to the sigmoid, while the microscopic examination of sections showed the process to be wholly inflammatory. The author calls attention to the fact that while such a colitis is ordinarily associated with severe diarrhoea, here there was a complete obstruction of the lumen.

Jenny[34] reports the unique case of ascarides entering the pleural cavity. The patient, a child, had passed 200 ascarides but did not improve. He had dyspnoea, a short hacking cough, vomited and had numerous thin stools in which the eggs of ascarides were found. Physical examination showed an enlarged liver and impaired resonance in the right lower chest. Puncture gave 100 cc. of pus with numerous ascarides eggs. No permanent relief followed and a rib was resected, which allowed a large amount of pus to escape, again containing eggs of ascarides. Full recovery followed and the author suggests that the worms passed up the choledochus to the liver, caused an abscess on the upper surface of the same, which broke through the diaphragm into the pleural cavity.

That achylia gastrica is often associated with diarrhoea is denied by Schur[35], who has carefully examined 20 cases of abdominal discomfort in which the most prominent symptom was constipation; all these individuals, after frequent examination, showed no hydrochloric acid in the stomach, with a total acidity of from 2 to 12, after the usual test breakfast. His conclusion is that diarrhoea is a very rare concomitant of achylia gastrica; on the contrary, constipation is much more commonly associated with it. When we find, rarely, a combination of diarrhoea and achylia, we may rest assured that the former is not dependent on the latter for its causation, but an associated enteritis produced by the same causes which produced the gastritis, the most common cause of achylia.

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CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 17081

FEVER AND LOWER ABDOMINAL PAIN

MEDICAL DEPARTMENT

PRESENTATION OF CASE

BY MAURICE FREMONT-SMITH, M.D.

age 58

The patient was first seen April 21, 1926, complaining of fever and griping pain in the lower abdomen. She had been entirely well until the day before admission. On the night previous she complained of not being able to keep warm. That afternoon her temperature was 102°. The bowels had been normal until April 21 and were then slightly sluggish. She had no appetite, but no nausea or vomiting. There was no sore throat or cough.

Past history. In 1924 she had had an attack of extreme discomfort in the epigastrium. X-rays demonstrated gall stones. A cholecystectomy was performed. At this time the surgeon had seen a healing ulcer of the duodenum. The stomach symptoms returned shortly after the cholecystectomy, but the patient had had no symptoms for a year previous to the present attack. There had been a marked gain in weight during the winter of 1925-1926. She had noticed dyspnea on walking uphill. There had been no urinary symptoms except nocturia once to twice for years.

Physical examination showed a temperature of 101.2°, pulse 108, blood pressure 170/100. The face was flushed, the eyes brilliant. The pupils were equal and reacted to light. There was marked arteriosclerosis of the retinal vessels. The glands and breasts were negative, the lungs negative. The heart was probably within normal limits of percussion, with a grating systolic murmur heard all over the precordium, loudest at the apex. There was no diastolic murmur. Abdominal examination showed the scar of a high right rectus incision. There was no tenderness or spasm. No organs were felt. There were no rose spots. The knee jerks were equal and active. The urine showed a gravity of 1.013, a very slight trace of albumin, no sugar, a few white blood cells, rare red cells and rare hyalin casts (non-catheterized).

She was put on an obesity diet. In June, 1926, she had lost 9 pounds and her blood pressure had dropped to 160/90.

On November 1, 1927, the patient was seen again complaining of a pain in the lower left axilla and back, a persistent ache especially at night, no pain on deep breathing and no cough. The pain was not increased by cough or sneeze. She was belching some gas. Her bowels were only fair. She complained of some nocturia only when awake; no dysuria. The blood pressure was 155/90. There was an area of discoloration in the left axilla with some tenderness, not localized over any particular point. The urine showed a gravity of 1.025, no albumin or sugar, many leukocytes and one hyaline cast.

In October, 1930, the patient complained of pain in the back and down the right sciatic nerve. She was easily tired and the night's sleep did not relieve her. She was puffing more than usual on walking uphill. She had no headaches, no dizziness, no edema and no cough. Her appetite was good. She had no pain, nausea or vomiting in relation to meals. Her bowels were normal from magnesia every night. She had had no ulcer symptoms for six years. The menopause had taken place twelve years before. Bleeding had stopped for several years and ten years ago had returned for two or three "periods". There had been no bleeding or discharge since that time.

She was sent in to the Phillips House for study. The basal metabolism was minus 3, the red cell count 4,700,000, the white cell count 8,000, the differential 58/30, eosinophils 4, large mononuclears 8, platelets negative. The red cells showed slight achromia and rare stippling. The non-protein nitrogen was 29 milligrams and the blood sugar, fasting, 214 milligrams per 100 cubic centimeters. Physical examination showed obesity, marked arcus senilis, normal ocular motions, no nystagmus, the mouth and throat negative, many infected teeth, glands and breasts negative, lungs negative, heart and abdomen as in the previous examination. The Hinton and Wassermann were negative.

She was put on a low carbohydrate diet without insulin. The blood sugar on November 10 was 148 milligrams. The patient felt very much brighter and went about her daily life with less fatigue.

X-ray examination of the chest and heart. The diaphragm was high on both sides, but moved normally with respiration. The lung fields were clear. The heart shadow was increased in its transverse diameter, the increase being to the left in the region of the ventricle. There was also some increase in the supracardiac shadow. The aorta was tortuous and prominent in the region of the knob. There was also evidence of calcification in the arch of the aorta. The measurements of the heart as taken from a seven-foot film were as follows: To the right of the median line 5 centimeters, to the left of the median line 9 centimeters, total transverse diameter 14 centimeters, length 14 centimeters, base 8.5 centimeters, great vessels 7 centimeters, internal diameter of the chest 23 centimeters.

X-ray examination of the teeth. There was considerable retraction of the alveolar processes, suggesting pyorrhea. In the right lower second bicuspid region there was a decayed tooth with a well defined area of bone destruction at its tip. There was also a decayed root in the right upper bicuspid region with a small area of density at its root tip. Both of these were probably abscesses.

Examination of the gastro-intestinal tract. There was no delay in the esophagus. The stomach filled in the usual manner. It showed no deformity of outline. Peristalsis was active. There was irregularity of the pyloric sphincter and a constant typical deformity of the duodenal bulb. There was no gastric stasis. The colon was fairly well filled at the end of six hours. In twenty-four hours it was practically empty. Scattered along the course of the descending colon and sigmoid there were small areas of barium which remained after the bowel was empty and which probably represented diverticula.

Examination of the spine. There was some increased density along the sacro-iliac joints on both sides, more on the right than on the left. There was also slight lipping of the vertebrae in the region of the lumbar spine. The examination of the spine and pelvis was otherwise negative.

Conclusions. The x-ray examination shows multiple pus pockets and tooth roots, increased gastric peristalsis, well defined duodenal ulcer, arteriosclerosis with enlargement of the heart, diverticulosis of the colon and arthritis.

George W. Holmes, M.D., Roentgenologist, October 16, 1930.

Examination of the colon. The barium passed to the cecum without delay. There was a moderate amount of saw-tooth spasm of the sigmoid and descending colon. Along the course of the colon there were several extraluminal pockets of barium characteristic of diverticula. There was no evidence of malignancy or other disease.

Conclusions. The appearance of spasm in the sigmoid may indicate inflammation of some of the diverticula.

A. O. Hampton, M.D., Assistant Roentgenologist, October 27, 1930.

Note from Dr. Meigs. Abdominal examination was entirely negative. Vaginal examination showed atrophy of the vagina, very mild spreading of the perineum. The cervix is normal—no exposure of the endocervix. The uterus is probably small, certainly not large, freely movable. No masses in either vault. Rectal examination shows a very tiny polyp arising from beyond the sphincter ani muscle which does not communicate with the inside of the rectum. There are a few other external hemorrhoidal tabs. By rectum nothing can be felt that is abnormal. The pelvis is entirely free.

I should give her a clean bill of health.

JOE V. MEIGS, M.D.

On November 25, 1930, the patient woke with pain in the left abdomen accompanied by diarrhea and vomiting. At the time of examination griping pain was still present. The diarrhea had quieted down. The patient complained of pain at the beginning of urination. The temperature was 100.5°, the pulse 84. Examination was as previously described except for slight tenderness in the right lower quadrant only without spasm.

On November 26 the patient said that she had had no pain the night previous and had had two stools. On this morning she complained of pain through the lower abdomen, nausea but no vomiting. The pain was crampy and was less noticeable if she lay quietly in bed. The pain preceding urination had disappeared. Her temperature was normal. At 11 a. m. there was a chill and rapid rise of temperature to 101°. The abdomen was definitely tender all over, the tenderness more marked now in the left lower quadrant. A moderate degree of "voluntary" spasm was noted. The leukocyte count was 10,000. A non-catheterized specimen of urine showed the slightest possible trace of albumin, a moderate number of leukocytes, no red cells or casts. At noon the temperature was 102° and the patient vomited. The blood sugar was 212 milligrams. The patient was seen by Dr. Meigs, who concurred in a diagnosis. A decision was reached not to operate.

On November 27 the pulse suddenly rose to 160, returning to normal after six hours without treatment. During the following three days insulin was given constantly. The patient passed no feces or gas and had no vomiting. On November 30 some gas was passed accompanied by a small amount of fecal material. Immediately afterwards she felt a severe pain in the left lower quadrant and had another chill with a temperature of 102°. That evening there was slight generalized spasm over the whole lower abdomen. Morphia and a daily subpectoral were given. The abdomen became more distended and spastic. There was passage of a small amount of gas on December 6. Otherwise she had complete obstipation, although peristalsis could be heard well generalized throughout the abdomen.

On December 7 the pulse became rapid and irregular. On December 8 the patient died.

CLINICAL DISCUSSION

BY RICHARD C. CABOT, M.D.

NOTES ON THE HISTORY

DR. CABOT: That of course is the history of any acute infection. We have nothing yet to suggest what.

Dr. Fremont-Smith, you know about Dr. Draper's work in New York. Doesn't he contrast the gall bladder type with the ulcer type? We are supposed to find one constitution that tends to have gall bladder disease and another

constitution that tends to have peptic ulcer. What can one do if one has both?

The nocturia was perhaps habitual.

What the acute infection was I do not know. I take it she made a rapid convalescence under excellent treatment. Often, you know, a diagnosis is a luxury. We can cure a patient without it.

I should say that freedom from symptoms of peptic ulcer is not uncommon as one grows older. I have known several ulcer patients who had no operation or any treatment in particular and yet gradually got better as they grew older.

NOTES ON THE PHYSICAL EXAMINATION

That blood examination does not come to much I should say.

The blood sugar is a little high.

I take it she had no sugar in the urine.

I suppose the diagnosis at this time was obesity with a high blood sugar which might become diabetes unless she was careful.

The x-ray findings in the chest and heart would all go with hypertension such as we know she had for a considerable period of her life. The total transverse diameter of the heart is increased to more than half the internal diameter of the chest. It should be less than half. We have good evidence of cardiac hypertrophy.

"Root abscesses" are the sort of thing that we find when looking for trouble. They are found pretty often in normal people. They are seldom found to be a cause of symptoms.

I suppose "typical deformity of the duodenal bulb" means typical of peptic ulcer. I suppose that healed ulcer has no particular significance in this case. I do not suppose it has anything to do with the cause of death. None of the x-ray findings of course could.

Dr. Meigs' abdominal and pelvic examination showed extraordinarily little pathology for so much in the way of complaints.

The blood sugar cannot possibly, I think, have anything to do with the case.

DIFFERENTIAL DIAGNOSIS

The diagnosis upon which Dr. Fremont-Smith and Dr. Meigs agreed was diverticulitis with perforation, I take it. They were treating what I suppose they thought was a general peritonitis.

I do not see how anyone can escape the conclusion that she died of general peritonitis. Two suggestions are possible as to its cause. One seems to be much more probable than the other. Certainly diverticulitis comes first. There is good evidence of that. It would give symptoms where and when she had symptoms,—left lower quadrant symptoms at fifty-eight. I do not see anything the matter with it as a diagnosis. The other possibility is peptic ulcer which might have perforated. In that case the clinical picture ought to have been different. Ulcers which had been inactive for six years and then suddenly perforate would be hard luck and decidedly improbable. At x-ray examination, too, we have a thorough investigation which ought to throw them out. We have no good evidence of dysentery which might perforate or of cancer which might lead to perforation, or of any disease of the bones or glands or bladder. So it seems to me we are right in sticking to that original guess of diverticulitis.

CLINICAL DIAGNOSES (FROM HOSPITAL RECORD)

Diverticulitis of the sigmoid.
General peritonitis.
Arteriosclerosis.
Cardiosclerosis.
Chronic pancreatitis?
Healed duodenal ulcer.

DR. RICHARD C. CABOT'S DIAGNOSES

Diverticulitis with perforation.
General peritonitis.
Hypertension.
Hypertrophy of the heart.
Healed duodenal ulcer.

ANATOMIC DIAGNOSES

1. *Primary disease.*

   Diverticulitis of the sigmoid and descending colon.

2. *Secondary or terminal lesions.*

   Generalized peritonitis.
   Arteriosclerosis.
   Hypertrophy of the heart.

3. *Historical landmarks.*

   Healed ulcer of the duodenum.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: That was what was found at autopsy. She had quite a marked diverticulitis of the sigmoid and descending colon. Immediately proximal to one of the diverticula was an abscess 3 or 4 centimeters in diameter containing fecal material. There was a surrounding acute inflammatory process and out beyond that a generalized peritonitis. There had been a slight question whether she might or might not have had an appendix. No one knew whether the appendix had been taken out with the gall bladder. It turned out that it had been. She had an old and quite inactive looking ulcer in the duodenum that played no part in the terminal symptoms at all.

A STUDENT: What did the heart show?

DR. MALLORY: It was enlarged to palpation. We did not remove it.

DR. FREMONT-SMITH: There were two or three interesting things in the case. The first was that the woman looked very well indeed. We

thought that she had a perforation and a localized peritonitis. It was interesting that she had the symptoms that Dr. Colby has spoken of in relation to diverticulitis. Colby has emphasized the frequency with which bladder symptoms may be associated with diverticulitis. A patient with diverticulitis of the sigmoid may have very few symptoms during life; perhaps only constipation or attacks of very mild pain. I remember one patient who had had eight years before a period of two days of acute obstruction during which he passed no gas or feces. He had been without symptoms for eight years when I saw him again complaining of griping pain in the lower abdomen and complete obstipation. He had vomited once. The pulse was 64, the temperature 99.2°. We decided to let him alone, feeling that he had diverticulitis of the sigmoid with a little peritoneal irritation outside causing obstruction. The next day the patient passed gas and feces, and so came through a second attack perfectly satisfactorily. When we were faced with this problem in a woman tremendously obese, with high blood sugar, with some evidence of aortitis and cardiac enlargement, we felt that it was wiser to let her alone than to operate. Operation to drain the peritoneal cavity behind the sigmoid is a very difficult procedure. Our hope was that there might develop a localized abscess that might be felt by vagina or rectum and drained from below.

The blood sugar possibly deserves a word. We very frequently find in arteriosclerotics a high blood sugar without any sugar in the urine. I think it is true that infection is handled badly by a patient with a high blood sugar, even though it be not very high. I remember a breast amputation in which the skin was very tight and in which gangrene began to appear along the sewn edges in a woman with a blood sugar of about 160. As soon as she was given insulin and the blood sugar dropped to 100 the gangrene cleared. That is a single instance, but it suggests that the patient handles infection better in the face of a low blood sugar. For that reason we gave this patient insulin believing that the peritoneal infection would be handled better if she had a normal blood sugar.

It is also interesting that the patient, who was apparently improving, had a passage of gas and feces and immediately following that pain and chill. I presume she had a spreading infection in the peritoneum. We asked Dr. Daniel Jones, who was in consultation, whether an appendix story ever included a history of chill. He said yes. It was an entirely new thought to me. A chill and appendicitis had been incompatible in my mind. In the presence of any infection of the blood stream a chill may occur. I have never seen a chill in a non-ruptured appendix. I presume in a spreading peritonitis a chill is in order.

DR. CABOT: I cannot be sure of that. I certainly have seen chill in appendicitis, whether non-ruptured or not I cannot remember.

DR. FREMONT-SMITH: I think I have never seen a chill associated with the onset of appendicitis. One always thinks of pneumonia or pyelitis. What happened evidently was a spreading peritonitis. The extraordinary thing was the reaction on the part of the patient. The blood count was never above 10,000. The last three days she was fever-free. She was not until the last two or three days a very sick woman. Of course the surgical problem was whether her obstruction was due to peritonitis, in which case it would be wiser not to go in, and hope for localization, or whether she had a definite mechanical obstruction low in the bowel. As we look at it now I do not believe we could have done anything to change the outcome.

DR. CABOT: I have seen many times in appendicitis the urinary symptoms of which Dr. Fremont-Smith speaks.

CASE 17082

EPIGASTRIC PAIN AND JAUNDICE

MEDICAL AND SURGICAL DEPARTMENTS

PRESENTATION OF CASE

DR. GILBERT T. HYATT*: A fifty-four year old French Canadian widow entered December 2 complaining of soreness and pain in the abdomen of seven weeks' duration and yellow skin of two days' duration.

She was well until seven months before entry, when she had a sudden severe midepigastric pain extending equally across both sides of the upper abdomen, severe enough to require morphia. As it persisted, she followed an ulcer regimen with relief after five weeks. Nocturia once or twice a night developed, and increasing constipation with small pebbly movements. She felt well enough through the summer and early autumn, but noted progressive loss of weight and easy fatigability. She continued at work. Two months before admission the severe epigastric pain returned but did not yield to the ulcer regimen of her physician. She then stopped work. The pain continued, having in addition appeared in the right lower quadrant, aggravated by lying on the right side. These pains always seemed worse after the midday meal, but were relieved temporarily by aspirin. During the past two weeks she had grown worse and had vomited almost everything taken. No blood was seen. She had no diarrhea and no tarry stools. Four days before entry the urine was dark. Two days before entry she noted that her skin was yellow. She had lost forty-four pounds in six months.

The past history is not contributory.

Clinical examination showed an old woman in no distress but with a pinched and anxious ex-

*Junior interne on the West Surgical service.

pression. The skin was slightly jaundiced and showed evidence of much recent loss of weight. The heart action was rapid, the rhythm regular. The pulses were synchronous, the right weaker than the left. The blood pressure was 90/70 on the right, 118/90 on the left. The abdominal wall was tense. The examination was unsatisfactory, but it was thought there was a large mass in the right upper quadrant, slightly tender and descending on inspiration. The surface felt irregular, with one or two large nodules.

The sedimentation rate December 12 was zero in fifteen minutes, 2.5 millimeters in sixty minutes. The icteric index at entrance was 40 to 50. December 30 it was 150, very high. The leukocyte count at entrance was 8,700, the red cell count 5,290,000. The urine at entrance showed a trace of albumin, 10 to 12 leukocytes per field, rare granular casts, bile. The stool was negative at the first examination. All of four later examinations showed a positive guaiac.

X-ray examination with a barium enema showed very marked displacement of the transverse colon. After emptying, the markings in a portion of the descending colon were large, consistent with colitis. The diaphragm was very high on both sides. Below the left diaphragm there was a very large fluid level, apparently in the stomach. The lower pole of the stomach was about one inch above the symphysis. There appeared to be an extreme dilatation of the stomach to the left as well as to the right. Hardly any peristalsis could be made out.

She was emaciated and not keeping things down well. She was becoming progressively worse. It was felt that exploration should be done, although it could not promise anything. Dr. Churchill saw her two or three times in consultation and finally said he would explore.

At operation a large mass was felt above the liver in the region of the gall bladder. The liver was several fingerbreadths below the costal margin. The gall bladder was not identified. No further exploration was done. A small hard nodule was removed for biopsy.

The patient remained in about the same condition following operation. About a week later she began to vomit even more than she had before. She had several gastric lavages with removal of from 50 to 150 ounces of material from the stomach. A jejunostomy was done to feed her. The surgeons contemplated anterior gastroenterostomy, but at operation the patient was so deeply jaundiced that they simply did the jejunostomy and fed her by that method for two weeks. She gradually got weaker, developed a good deal of ascites and a process in the chest which we thought was pneumonia, and died.

DR. TRACY B. MALLORY: Have you anything to add, Dr. Bock?

DR. ARLIE V. BOCK: I made a note on December 7: "The history of weight loss, fatigue, pain and jaundice are all in favor of malignancy. The stomach is probably negative. There is no history suggesting gall stones in the past. The rapid onset of jaundice is not explained. At the present rate of progress the outlook is hopeless, with cholemia likely to appear in days to weeks."

PATHOLOGIC REPORT (BIOPSY)

Metastatic carcinoma.
Acute and chronic inflammation.

X-RAY INTERPRETATION DECEMBER 23

The findings are consistent with a high degree of pyloric obstruction, the anatomic basis of which at least has primarily been an ulcer.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Carcinomatosis.

ANATOMIC DIAGNOSES

1. *Primary diseases.*

Cholelithiasis.
Gall stone in the ampulla of Vater.
Carcinoma of the gall bladder with metastases in the regional lymph nodes and the pancreas.

2. *Secondary or terminal lesions.*

Ulcer of the duodenum with obstruction.

PATHOLOGIC DISCUSSION

DR. MALLORY: She had a considerable variety of pathologic processes that would undoubtedly have given a very complex clinical picture.

The cause of her gastric obstruction was an ulcer in the duodenum. She had also a stone in the ampulla of Vater. She had a gall bladder containing several hundred stones, and she had primary carcinoma of the gall bladder invading the surrounding liver tissue, with metastases in the regional lymph nodes, including one metastatic nodule lying practically in the head of the pancreas. We have had a number of cases of carcinoma of the gall bladder during the past year. It has been interesting that in practically all of them we found tumors in the gall bladder and in the pancreas as well. It is often difficult to tell which is primary. In this case there is no doubt that it was primary in the gall bladder. Almost invariably cancer of the gall bladder develops in a patient who has stones. There are some figures in Graham's paper in the Ewing memorial number of the Annals of Surgery* on the frequency of cancer of the gall bladder. Graham gives the percentage of cases of carcinoma of the gall bladder which show stones as anywhere from 70 to 100. He also emphasizes the fact that cancer of the gall bladder is commoner than it is generally given credit for be-

*Ann. Surg. January 1931, 93:317.

ing,—8 to 10 per cent of all cancers in a series of nearly 20,000 autopsies.

In this connection let me remind you of a case that we took up in this clinic about a year ago. The patient was a woman who came in with cancer of the gall bladder, who had been operated on in this hospital fourteen years before for some pelvic condition. The surgeon at that time felt a stone in the gall bladder but did not do anything about it. Fourteen years later she died of carcinoma of the gall bladder. That is always a possibility where a gall stone is left untouched.

A PHYSICIAN: What proportion of your autopsies show gall stones?

DR. MALLORY: About 15 per cent. In Vienna it is certainly higher, but I cannot give any figures.

THE DOCTOR IN SOVIET RUSSIA

An article entitled "The Doctor in Soviet Russia" (condensed from the *Nation* of September 24, 1930) was considered of lasting interest and appeared in the *Reader's Digest* of November, 1930. Dr. Ralph A. Reynolds, a San Francisco physician, visited Russia at the invitation of the Soviet Minister of Health and says:

"To appreciate the position of the doctor under socialized medicine in Soviet Russia today, one must know something of the old régime. As in many other spheres of Russian life, there were in medicine the most diverse extremes of backwardness and enlightenment. Certain experimental laboratories and institutions stood at the very forefront of the scientific world, but there was no organized effort on the part of the government to insure medical attention to the mass of the people. In the country districts, generally speaking, medicine was administered by men who had failed to make a living in the city. In some districts the proportion of physicians to inhabitants was one to 40,000. It was not uncommon for a man with a broken leg to have to drive two days to reach any one who could set it. In all Russia in 1913 there were only 12,677 doctors or one to every 12,000 persons."

At that time the doctors, being members of the privileged class, were prosperous and happy. Then came the Revolution and with it complete control of medical service by the State. The fundamentals of the new program are the unification of medicine; the accessibility of medical aid to all citizens; free medical treatment for citizens and the placing of emphasis on prophylactic work. The doctors, nurses and pharmacists became civil servants and all hospitals, sanitaria and drug stores became state institutions. A standardization of hours of duty and of salaries followed. Salaries now range from $60 to $120 monthly. Doctors have been reduced to the capacity of poorly paid employees of the State and patients are expected to go to the clinic for their particular group.

That medical aid might be accessible to all citizens, the Government undertook to support practically all students through their entire course of training. A compulsory three years' period of service in the rural districts follows graduation, this being considered just payment for the training and support the student has received from the Government.

The Railway Workers Clinic in Moscow is an illustration of the actual working of this system. This clinic "is subsidized by the social insurance fund, and employs 143 full-time physicians and 40 more who attend to necessary calls in patients' homes out of clinic hours. The average number of patients treated daily in this clinic is about 3500. Each doctor must see a certain number daily—for instance, each interne must see 35 patients daily, each pediatrician 28, each neurologist 30, each ophthalmologist 80, each dentist 18, each surgeon 45, each ear, nose, and throat specialist 40. Doctors spend about six full hours daily actually at work in the clinic. The rest of his time the doctor has free to spend as he chooses. If he wishes to do research work at home, the state gives him an additional room and the necessary supplies. As far as I could recall, the quality of medical work performed was good—about on a par with that in our university and other free clinics."

How does all this affect the doctor? One brilliant physician comments as follows:

"How can we do our best work, when we must go from our laboratory to small, poorly heated, dingy quarters? Even our laboratory animals are better housed than we. To be sure, our living conditions are better than in the early days of the revolution, yet still our rooms are overcrowded and we must share our kitchens with four or five other families. It is true that we receive enough money from the state to support ourselves and our families, but a man needs more than bare support. He needs a place that he can call his own. He needs to see his family decently clothed. He needs to be free from the eternal system."

It behooves members of the medical profession in America to consider the trend of public opinion throughout Europe since the war. Germany now has a national plan of social insurance and modified state medicine. Czechoslovakia and Poland have modified plans of social insurance. England, under the Labor Government, is developing the public health system for the benefit of the public at the expense of private practice. Perhaps the value of these national plans can be incorporated into the American system without doing away with personal initiative, competition and reward.

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THE TREATMENT OF GENERAL PARESIS BY MALARIAL INOCULATION

MALARIAL treatment of paresis was inaugurated nearly fifteen years ago by Professor Wagner-Jauregg of Vienna. Recently he has summarized his views in regard to the value of this method of treatment.* He points out that the danger from malarial treatment is not so great as it was formerly considered to be. Attacks may be easily stopped by the use of quinine and in a patient of feeble constitution treatment may be given in two parts. The effect of the treatment is usually judged by the number of remissions or the time which a single remission is maintained. Wagner-Jauregg reports three patients who were discharged after treatment, in 1917; two are still well and the other died free from paralysis, in 1928, of an intercurrent complaint. One of his assistants, Dr. Dattner, in a report from the Vienna Psychiatric Clinic, has shown that out of a total of 129 patients treated between 1922 and 1924, 53 are still enjoying full remission and are capable of following their occupations; 4 more have died of intercurrent disease. In many cases the cerebrospinal fluid has become negative or only weakly positive as the patients have been improved clinically. Pathological findings in a few cases are also reported. Sträussler has found in one case of general paresis, examined after a long remission, that the anatomical changes of inflammation and degeneration usually found were no longer evident.

Wagner-Jauregg also reviews the other types of non-specific treatment and comes to the conclusion that malaria offers the best opportunity of curing patients with general paresis. The method† seems to be more than holding its own in the treatment of this fatal disease, although many years must elapse before a final judgment can be given. Other methods also are efficient and many workers prefer the use of tryparsamide in spite of the well-known danger of occasionally causing optic atrophy. It may be fairly stated, however, that malarial therapy is a distinct addition to our methods of treating neurosyphilis, especially in its late cerebral manifestations. It would seem to be of particular value in those cases where the disease shows great resistance to treatment by the older methods, and also for those patients who, unfortunately, do not have the correct diagnosis made until the disease is well advanced.

**Munch. med. Woch.*, 78:4, Jan. 2, 1931; *The Lancet*, 120, 143, Jan. 17, 1931.

†In "Therapeutic Malaria" by G. deM. Rudolf, Oxford University Press, 1927, there is a good account of the whole subject.

MEDICAL INSURANCE

IN an address before the New York Academy of Medicine January 26, 1931 Dr. Charles G. Heyd offered as a solution of the great burden now being carried by doctors in providing for medical treatment, a system of insurance whereby the medical costs could be distributed over sufficient time to enable patients to meet them.

He estimated that doctors contribute $350,000,000 annually to society in free service. His suggestions cover six methods which could be employed including a central registry for dispensary patients to prevent shopping around; adequate supervision of hospitals and study of pathologic material; the establishing of hospital and dispensary zones for the free treatment of worthy poor; the bringing of suit against certain medical bureaus which, as corporations, he alleges are practicing medicine and the formation of a committee to study all the points suggested and submit recommendations as to details especially with reference to the application of the insurance principle.

While it is encouraging to learn of the application of practical ideas to the economic problems before the medical profession and society at large the fundamental needs are first, the development of unanimity in the profession in

entering upon constructive study of these questions and second, leadership which will not only present clearly defined plans but will bring to bear that degree of mental control over the divergent interests which will result in effective consideration.

As it is now the great question seems to be, is not the medical profession divided in its conceptions of the problems before it and is it not waiting for some Moses to lead the wandering tribes out of the desert?

A benevolent and wise monarchy might deal effectively with the complicated and conflicting problems inherent in the burdens imposed on the medical profession and Society by the indigent sick but democracy is the order of the day and progress will have to wait for general unanimity of opinion as to the practical details necessary to insure fairness to all concerned.

THE LICENSING OF BLOOD DONORS

Until within recent years the therapeutic use of human blood was an uncommon resource. At the present time the demand and the supply have grown but the methods of distribution are not above suspicion. Certain abuses have crept in which have inspired the Commissioner of Health in New York City to create a bureau of control which will license approved donors.

There are now known to be about 8,000 blood donors in New York City and in order to safeguard the quality of the product two special additions to the sanitary code have been adopted in substance as follows: No person shall act as a blood donor for a fee without having a certificate of registration issued by the Commissioner and no person may operate as a blood donor agency without a permit from the Board of Health.

These regulations were believed to be essential because certain donors were found to be afflicted with communicable diseases. Approved donors are given a passbook with a complete record of the physical examination of the donor and his blood together with a verifying photograph. In this passbook are recorded the dates and amounts of blood given by the owner. This is essential for it has been found that blood of poor quality has been supplied because of the frequent use of a given donor.

This plan is the first of its kind and will, if carefully supervised, insure the quality of the blood and its adaptability to given conditions. All large cities could adopt a similar plan to the advantage of the public and qualified donors.

One striking illustration of the ill effect of the unwise withdrawal of blood from a donor has been made public in the case of a student who was dependent on the income derived in this way to enable him to carry on his studies. An inopportune demand brought about physical and mental disabilities which led to an unsatisfactory demonstration in an examination.

The donor evidently may need protection if his financial needs overcome his discretion.

DANGERS OF THE BATH TUB

Recently the *Baltimore Sun* published an article on the dangers which are due to a bather handling electrical cords and fixtures with wet hands, the electricity coursing through him with attendant injury. Of course this is a real menace and, perhaps, as suggested, authorities will be justified in putting up danger signs in all bath rooms. A greater danger of the modern enamelled iron tub is the chance of slipping when there is a bit of misplaced soap or washing powder left by the cleanser and undetected because of the color, with consequent fractured ribs or other serious injuries resulting from a fall. This is a happening to older persons especially and one of too frequent occurrence. In the olden days the wooden box lined with tinned copper was much less of a peril. At all events the tub of those days, and there was seldom more than one in a household, had a hand hold on both sides so that the bather might prevent a slip. The past generation maintained that such a tub was not only less slippery but was warmer and of more comfort, although not susceptible of so much cleanliness. Nowadays the gleaming white tub—many a one in every house and hotel, even a tinted one in the de luxe bathing chambers seen in the advertisements—extends on one side into the wall of the room and there is no hand hold on that side for the incautious bather. A slip is more apt to occur. Why multiply the hazards of living? Could the statistics be obtained from the medical profession of the United States, the home of the bath tub, it is a fair guess that the number of serious injuries due to bath tub slippings would be very considerable. Let us urge the plumbers to set their tubs an inch or two away from the wall so that the bather may have hand grasps on both edges and thus lessen the dangers of the getting in and the getting out.

The Massachusetts Medical Society

SOME FEATURES OF THE ANNUAL MEETING

At the meeting of the Council on Feb. 4, 1931, the Committee of Arrangements announced the program for the sesquicentennial meeting of the Society to be held in Boston next June. The committee promises a series of events which will mark this the finest meeting of the society.

The Hotel Statler has been chosen for the headquarters of the meeting, and registration, exhibits, section meetings, the annual dinner, and the annual oration will take place there.

The program for the first day includes hospital clinics, a lawn fête on the estate of Mr. Larz

Anderson in Brookline, and a reception in the evening at the Boston Art Museum. The Shattuck lecture is to be given by Dr. Alexander Primrose of Toronto and will precede the reception at the Museum.

The events of the second day take place within the hotel, and include the annual dinner in the evening. The meeting ends on the third day with the Annual Oration by Dr. Harvey Cushing. Members from distant parts of the state will have plenty of time to drive home after the oration.

It is hoped that the attendance at this anniversary meeting will eclipse all others, for the committee will spare no effort to make it the best possible. Information concerning any part of the program will be very gladly furnished by the chairman of the Committee of Arrangements, Dr. H. Quimby Gallupe, 751 Main Street, Waltham, Mass.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

PATTERSON, DANIEL C. M.D. University of Maryland School of Medicine and College of Physicians and Surgeons 1906. F.A.C.S. Attending Surgeon, Bridgeport Hospital. His subject is: "A Case of Koehler's Disease." Page 351. Address: Bridgeport, Connecticut.

JAMESON, JAMES W. A.B., M.D. Columbia University College of Physicians and Surgeons 1905. F.A.C.S. Attending Surgeon, Margaret Pillsbury General Hospital. Consulting Surgeon, Peterborough Hospital. His subject is: "Foreign Body from Bladder." Page 354. Address: Concord, New Hampshire.

SEVER, JAMES WARREN. M.D. Harvard University Medical School 1901. F.A.C.S. Assistant Professor of Orthopedic Surgery, Medical School of Harvard University. Associate Orthopedic Surgeon, Children's Hospital. Consulting Orthopedic Surgeon, General Stephen Henry Gale Hospital, Haverhill. Orthopedic Surgeon, Cambridge Hospital, Cambridge; Waltham Hospital, Waltham and Massachusetts State Hospital School for Cripples, Canton. His subject is: "Traumatic Separation of the Symphysis Pubis." Page 355. Address: 321 Dartmouth Street, Boston.

MCCANN, JAMES C. A.B., Ph.D., M.D. Harvard University School of Medicine 1924. Surgeon, Fallon Clinic and St. Vincent Hospital, Worcester. Address: Slater Bldg., Worcester, Mass. Associated with him is:

FALLON, JOHN. A.B., M.D. Harvard University School of Medicine 1923. Surgeon, Fallon Clinic and St. Vincent Hospital. Worcester. Address: Slater Bldg., Worcester. Their subject is: "Sodium Amytal as an Intravenous Anaesthetic." Page 358.

FERGUSON, ELEANOR B. S.B., M.D. Boston University School of Medicine 1920. Assistant Anaesthetist, Massachusetts Memorial Hospitals. Instructor in Clinical Anaesthesia, Boston University School of Medicine. Her subject is: "Clinical Experiences with Sodium Amytal and Avertin as Basal Anaesthetics." Page 363. Address: 510 Commonwealth Avenue, Boston.

RUSHMORE, STEPHEN. A.B., M.D., F.A.C.S., writes a continued article on "Some Aims of Medical Education." Page 366. For further record and address of author see "This Week's Issue" page 333, issue of February 12.

AUSTIN, A. E. A.B., A.M., M.D. Harvard University Medical School 1887. Formerly, Professor of Biochemistry, University of Virginia and University of Texas. Assistant Professor of Theory and Practice of Medicine (Emeritus) Tufts College Medical School. Physician (Emeritus) Boston Dispensary. His subject is: "Progress in Gastroenterology in 1930." Page 377. Address: 270 Commonwealth Avenue, Boston.

MASSACHUSETTS LEGISLATIVE NOTES

The following bills have features of interest to physicians. Complete copies may be obtained at the State House.

House 1183—An Act to regulate the Giving of Notices of Injuries under the Workmen's Compensation Act.

House 1182—An Act relative to the Discontinuance of Compensation under the Workmen's Compensation Act.

House 1180—An Act to regulate the Payment of Compensation in Case of Death under the Workmen's Compensation Act.

House 1178—An Act to regulate the Payment of Compensation for Total Incapacity under the Workmen's Compensation Act.

House 1175, an amendment to the Workmen's Compensation Act, defines incapacity as follows:

"Incapacity", such incapacity for work as results from a physical injury arising out of and in the course of the employment of the employee, but not including the results of a preëxisting disease.

House 1184, an act relative to claims for compensation under the Workmen's Compensation Act, provides in an amendment that the right to claim compensation under this chapter (152 of the General Laws) shall be barred, except as hereinafter provided, unless within one year after the date of injury, or if death results therefrom, within one year after such death, a claim for compensation shall be filed with the department, but the insurer shall be deemed to have waived the bar of the statute unless the objection to the failure to file the claim within one year is raised on the first hearing on such claim at which all parties in interest are present. No case in which an advance payment is made shall be barred by the failure of the employee to file a

claim, and the department may at any time order a hearing on any such case in the same manner as though a claim for compensation had been filed. The department may, however, by unanimous vote of the members qualified to act, permit the filing of a claim for compensation after the expiration of one year from the date of injury, but not exceeding two years after the date of such injury, when it shall find that such filing shall be in the interest of justice; and may order a hearing and make such award or decision on such claim as though the claim for compensation had been filed within the time prescribed in this section.

House 1179 is an act to regulate the payment of compensation for partial incapacity under the Workmen's Compensation Act. This act provides that the compensation period shall not extend beyond five hundred weeks from the date of injury and shall terminate upon the payment of forty-five hundred dollars, whether for total incapacity, partial incapacity or both.

The three bills last named will be heard on February 26 at 10:30 in the Auditorium before the Committee on Labor and Industries.

House 265. Petition of Samuel B. Woodward for legislation to require the vaccination of children in private schools will be heard February 24 at 10:30 in the Auditorium before the Committee on Public Health.

House 760. Petition of the Citizens' Committee Opposing Compulsory Vaccination for legislation to make vaccination and inoculation non-compulsory will be heard February 24 at 10:30 in the Auditorium before the Committee on Public Health.

Senate 100. Report of the special commission established (under Chapter 36 of the Resolves of 1930) to inquire into the use within the Commonwealth of habit-forming drugs and other potent medicinal substances will be heard February 24 at 10:30 in the Auditorium before the Committee on Public Health.

House 914. Petition of Herbert Lotz for the establishment of a board of registration in chiropractic and relative to regulating the practice thereof. Hearing scheduled for March 2 at 10:30 in Room 481 before the Committee on State Administration.

MISCELLANY

AN EFFORT TO ELIMINATE THE DESIGNATION "LEPER"

Members of the World Conference on Leprosy recently held in the Philippines agreed to work for the discontinuance of the word "leper" because of its unpleasant association, in conformity with the custom of giving up the word "consumption" in speaking of tuberculosis.

Instead of calling patients "lepers" it is hoped to designate such sufferers as cases of leprosy with the dissemination of information of the likelihood of curing the disease as shown by the results of treatment in recent years.

Considerable numbers of arrested cases of leprosy are being recorded. One announcement as recent as February 11 reports the release of eleven patients from the Carville, La., leprosarium.

PROFESSOR ARCHIBALD LEITCH HAS DIED

Professor Archibald Leitch died recently in London. He was the director of research in the London Cancer Hospital and professor of experimental pathology in the University of London.

Dr. Leitch had contributed facts relating to the cancer-producing compounds of tar and had been in close touch with Dr. James B. Murphy and Dr. Francis Carter Wood of New York. He was a corresponding member of the French Association for the Study of Cancer, an honorary member of the German Central Commission for Cancer Research and general secretary of the International Cancer Committee. He died at the early age of fifty-two.

THE MASSACHUSETTS MEDICAL BENEVOLENT SOCIETY

The resignation of Dr. William Lambert Richardson as Treasurer of this Society on December 1, 1930, terminates a quiet service for the medical men of Massachusetts which has been running along unnoticed and uncommented on since he took that office in 1891; practically forty years of kindly, interested work for physicians and their families who have needed financial assistance.

It seems to me that this gives an opportunity to bring to our fellow physicians a few words about this Society.

At a meeting of the Boston Medical Book Club in December, 1856, a committee was appointed to formulate a plan for an association for the relief of destitute physicians or their families.

At a subsequent meeting, held in Boston on March 19, 1857, certain physicians formed themselves into an association for the above purpose, and adopted Articles of Association and By-laws to carry into practical effect the above-named purpose, under the name of the Massachusetts Medical Benevolent Association.

Under this organization the list of subscribers was increased from time to time so as to include physicians resident in Massachusetts. On May 8, 1871, The Massachusetts Medical Benevolent Society was organized under a special Act of Incorporation.

The officers of the Society are a President, a Vice-president, a Treasurer, a Secretary, elected annually, and nine Trustees, three of whom are replaced each year.

The income of the Society is paid quarterly to physicians who, through illness or misfortune, have found it necessary to request aid and to widows and children of such physicians. The amount paid is generally between $200 and $400, but this in many instances has been sufficient to remove a great source of worry from the unfortunate family. It might also be stated that previous membership in this Society is not a necessary requisite for a beneficiary.

My object in writing so fully about this Society is to bring to the attention of all members of the

Massachusetts Medical Society who do not belong to it an opportunity to help support this philanthropy which is limited to our own profession.

The annual dues are very moderate as is also the life membership and we really need more funds, for we have an opportunity to do more good than we are able to finance, especially at this time of general depression.

Inquiries may be made through any of the present officers, who are

Dr. George Gray Sears, President,
Dr. Robert Montraville Green, Vice-President,
Dr. Roger I. Lee, Treasurer, or the signer,

DR. HILBERT F. DAY, *Secretary.*

LEAD POISONING FROM TOYS

The Public Health Service reports that information submitted by pediatricians shows that cases of lead poisoning in infants and children have been noted.

This is the result of biting paint from cribs and toys.

Parents should be told that the use of lead paints on articles within the reach of children should be avoided.

This warning has been given before but there is occasion for repetition.

DOCTORS AND MEDICINES CANNOT BE PROVIDED BY THE RED CROSS

Dr. William DeKleine, Red Cross Medical Director, has announced that doctors and medicines will not be provided for drought victims.

It is probably true that medical service may in many instances be as vitally important as food or clothing. Since the Red Cross cannot cover this need doctors and nurses will undoubtedly be called upon to do as has so often been done before, supply service without hope of reward in many instances.

THE DOCTOR AND HIS PATIENT'S NURSE

The patient's own physician and the hospital registry are the two chief sources through which patients get their special nurses, it is shown in a study made of 1,892 patients in all parts of the United States. This is corroborated by findings in a previous study of more than 4,000 physicians.

About one in every three special nurses was secured by the patient through his own doctor. Twenty-nine per cent. of the registered nurses were obtained in this way; and 51 per cent. of the practicals. The hospital registries supplied 46 per cent. of the R.N.'s and 15 per cent. of the practicals. Together, the physicians and the hospital registries supplied three-fourths of the registered nurses, and two-thirds of the practicals.

The third most frequently used source is the central, professional registry, with the commercial registry at the foot of the list. The R.N.'s were secured as follows:

46% through a hospital registry.
29% through the patient's own physician.
15% through the central, professional registry.
3% through friends.
2% through a commercial registry.
5% through other sources.

The practicals:

51% through the patient's own physician.
15% through the hospital registry.
14% through the central, professional registry.
13% through friends.
3% through commercial registries.
4% through other sources.

The Committee on the Grading of Nursing Schools, from whose findings the above figures come, studied the source to which patients go for their nurses because the standards of these agencies can greatly influence the quality of bedside nursing. Uniform acceptance of only highly qualified applicants for their lists, for example, would help assure the community of fine nursing service.

Other aspects of the nursing situation, as the doctors and the patients see it, were studied by the Committee, as a basis for finding out how to provide adequate and economical nursing for the patient. They include reasons why special nurses are employed, the type of nurse most in demand, and satisfaction with nursing service received.

The physician's desire to have expert nursing care for the patient was the largest single reason patients gave for employing special nurses. The percentage for each type of case was as follows:

Contagious—69% of the physicians advised the special nurse.

Mental or nervous—53% of the physicians advised the special nurse.

Pediatric—47% of the physicians advised the special nurse.

Medical—47% of the physicians advised the special nurse.

Surgical—41% of the physicians advised the special nurse.

Obstetric—22% of the physicians advised the special nurse.

This would seem to indicate that physicians wish to have specialized and expert nursing care for certain types of cases since, in many instances, they took pains to recommend a special nurse; and that, not only for surgical cases, but for other types of illness, special training on the part of the nurse is desirable.

More than one-fifth of the patients employed a special in the hospital because they felt the regular nursing service would be inadequate. The physicians also felt that, given adequate floor service in a well-run hospital, two-fifths of their cases would not have needed a special. It seems probable, therefore, that with improved hospital nursing service, some patients might be able to eliminate the expense of a special from the sickness bill.

On the other hand, expense does not deter two out of 100 patients from "keeping up with the Joneses"

by employing specials because their friends always have them.

Patients gave the following reasons for employing special nurses in the hospital:

40%—the doctor urged one for special care.

33%—the family wanted a special on the case.

22%—the patient felt the hospital nursing service was inadequate.

3%—the hospital suggested it as usual.

2%—their friends always have a special.

The wish for expert care on the part of patients and physicians was also the largest single reason for employing special nurses in the home. Aside from this, patients took a nurse largely because a capable, intelligent worker was needed to take charge. The figures seem to indicate that patients want their nurses first of all to be thoroughly trained in taking care of their type of illness; and that adaptability is an important qualification for a nurse for the home patient.

Patients employed special nurses in the home because:

58%—expert care was wanted.

19%—the family was too busy.

11%—the patient wanted freedom from responsibility.

6%—the family was tired out.

6%—some one was needed to take care of the household.

Eighty-eight per cent. of the nurses employed by the 1,892 patients were registered graduates; 11 per cent., practicals; 1 per cent., unclassified. The same decided trend toward general use of the registered nurse was found in the study made through the 4,000 physicians, with fully eight times as many registered nurses used.

When practical nurses are employed, they are used much more frequently for home than for hospital cases. Eleven per cent. of all the nurses employed by this group of patients were practicals of the patients with practicals, nineteen per cent. were in the hospital, seventy-two per cent. were in the home, nine per cent. were in both hospital and home.

When the desire for expert care is the reason for getting a nurse, patients employed the R.N. far more frequently than the practical. Sixty-three per cent. of those employing the R.N. did so for this reason; and only 38 per cent. of those employing practicals.

When the patients wanted some one chiefly for household duties, 15 per cent. of those employing practicals did so for this reason; and only 3 per cent. of those employing R.N.'s wanted the nurse for household duties.

As for satisfaction with the nurse, both types seem equally popular with patients. Physicians, however, are even more desirous to have the registered nurse for their cases than are the patients, and are more pleased with the work they do. Asked, "Which do you prefer for your own patients?" 84 per cent. of the doctors chose the registered nurse, and only 8 per cent. preferred the practical.

A typical comment from a patient was, "Prefer registered nurse. By having a practical and a registered nurse at the same time, we learned the benefits derived from three or four years of professional training."

When patients were asked in general if they would like the same nurse again, 86 of each 100 said they would, 2 per cent. would hesitate, and 12 per cent. would not. Physicians were even more satisfied with the nurses their patients had, nine out of ten saying they would like the same nurse on the next case.

REDUCING PRISON POPULATION BY BRINGING SCIENCE TO COURT

If facilities for physical examinations and for psychiatric study could be made available to juvenile and criminal courts throughout the United States it would be possible to reduce the prison population materially, states the recently published Year Book of the National Probation Association.

The Court, with the aid of physicians, psychologists, and trained probation workers is enabled to identify the apparently incurable delinquents and save the state the cost of keeping others.

"Psychiatry," comments the Year Book, "greatly facilitates the work of the judge. The establishment of court clinics or psychiatric services in connection with courts is receiving special attention not only from psychiatrists but from such groups as the American Bar Association. The American Bar Association recommends that there be available to every criminal and juvenile court, a psychiatric service to assist the court in the disposition of offenders, and that no criminal shall be sentenced for felony in any case in which the judge has discretion as to sentence until there has been filed a psychiatric report as a part of the record.

"Unfortunately there are today not more than ten or twelve juvenile courts in our country with their own psychiatric clinics. Many courts utilize community child guidance or mental hygiene clinics, but these are usually able to accept only a limited number of juvenile court cases.

"Probation has been found successful only to the extent that it has recognized medicine, psychiatry, psychology, neurology and sociology and used these sciences in individual cases of misconduct. If 10 per cent. or 20 per cent. or even higher averages do not respond to probation and commit acts injurious to the community, it can be attributed to no other factor than that of the failure to determine by scientific processes immediately after the conviction of the offender, that he is not amenable to probation."

To improve the treatment of court offenders in the criminal and juvenile courts of the country, the National Probation Association, in its 1930 Year Book presents five recommendations:

First, facilities for physical and psychiatric examinations for all courts dealing with problem children and early offenders.

Second, the appointment to court positions of only judges and probation officers who are trained and qualified by experience and personality for the job in hand.

Third, the establishment of state probation departments or bureaus in order that the work of court and probation departments may be standardized and rendered more effective. "Justice," states the Year Book, "can never be truly meted out until juvenile courts and probation are developed on a state-wide basis granting assistance to the rural regions as well as to the cities."

Fourth, the improvement and standardization of laws relating to delinquency and crime prevention.

Fifth, the extension of methods and processes of the juvenile court to the treatment and disposition of offenders over the age of 16 or 18 years as now generally provided by law.

The President of the National Probation Association is George W. Wickersham, Chairman of the National Commission on Law Observance and Enforcement, and its General Secretary, Charles L. Chute.

Among the writers for the Year Book are: Dr. Roscoe Pound, Dean of the Harvard Law School; Dr. Raymond Moley, Professor of Public Law, Columbia University; Sanford Bates, U. S. Superintendent of Prisons; Charles L. Chute, General Secretary, National Probation Association; Judge Charles W. Hoffman, Court of Domestic Relations, Cincinnati, Ohio; Frederick A. Moran, Executive Director, Division of Parole, Albany, New York; Dr. William Healy, Director of Judge Baker Foundation, Boston, Massachusetts, and Dr. Winfred Overholser, Assistant Commissioner of Mental Diseases for Massachusetts.

DR. PETER WILL ORGANIZE HEALTH EDUCATION FOR CHINESE GOVERNMENT

At the invitation of the Chinese Ministry of Health, Dr. William W. Peter, Director of the Health Service of Cleanliness Institute, New York, will go to China some time in February to help organize a national health education program for the Nationalist government. The request of the Chinese Ministry of Health was cabled here from Peking by Dr. John B. Grant, adviser in health to the Nationalist Government and representative of the Rockefeller Foundation in China.

Dr. Peter is recognized as a leading authority on health conditions in the Orient. He was one of the founders and the director of the China Council on Health Education, with which he served from 1911 to 1926. He has been a lecturer at Pennsylvania-St. John's University Medical School, Shanghai, and the Peking Union Medical School.

During the World War he served with the Chinese Labor Corps in France. Upon his return to America in 1926 he joined the staff of the American Public Health Association as associate secretary, and when Cleanliness Institute was established, in 1927, he became its health consultant. He is a graduate of Rush Medical College, University of Chicago, and has received the degrees of Ph.M. from Northwestern College, C.P.H. from Harvard University—Massachusetts Institute of Technology, School of Public Health, and Doctor of Public Health from Yale. He is the author of a number of books and magazine articles on health work in the Orient.

TULARAEMIA

Recent reports to the United States Public Health Service indicate that an unusually large number of cases of tularaemia are occurring this Winter. Because of economic conditions, rabbits form an importance article of diet for a number of persons in many sections at the present time.

As a rule, when the infection has come from a rabbit some injury has been inflicted on the hand, although an obvious injury is not necessary for infection to occur. Usually an ulcer develops at the site of infection, accompanied by enlargement of the lymph glands which drain the ulcer. Fever is always present and continues for two to three weeks. The primary lesion may be located on the eyelid or on parts of the body other than the skin of the hands, if due to tick bite or fly bite. The diagnosis is confirmed by a blood test. One attack of the disease confers immunity in man from further attacks.

There is no special treatment for this disease. Rest in bed is the most important measure. No preventive vaccine or curative serum has been perfected, nor has any special drug been found effective against tularaemia.

Rabbit meat, thoroughly cooked, is harmless for food; and it has been found that a temperature of 56° Centigrade, or 133° Fahrenheit, kills the germ of tularaemia. The ordinary disinfectants are effective. Rubber gloves should be worn by those who must dress wild rabbits. Immune persons should be employed to dress them where possible. Infected rabbits kept in cold storage at a temperature just above freezing may retain their infection for three months, but not for four months. Market inspection of rabbits is impracticable, because only about 10 per cent. of the rabbits found in the market still have the liver in place.

Finally, beware of the wild rabbit which the dog or cat has caught, or which a boy has killed with a club—it is probably a sick rabbit.

CLIMATE AND TUBERCULOSIS

The United States Public Health Service has recently pointed out that there was a time when change of climate was almost always recommended for tuberculosis. People believed that certain climates cured tuberculosis. They thought that dry air or mountain air or warm or cold air was better than some other kind of air and that the climate of the arid southwest or of Florida or of California would cure tuberculosis. Medical opinion has changed. We no longer believe that climate will cure tuberculosis. We ask ourselves where treatment can be obtained of the kind required and within the means of the patient. A child or an aged person is seldom sent far away. A young man or woman may be advised to go away if there is some good reason for it. The most important thing is good medical care, usually in a sanatorium, no matter what the climate is.

Good medical care can now usually be found near home, although twenty years ago one often had to

go to a resort to find a tuberculosis specialist. Skillful doctors and nurses and good sanatoriums can be found in almost every State, and as for climate, no State in the Union has found it necessary to go outside its borders to locate its State sanatorium. The home climate, even if it is the worst climate in the world, is best if proper medical and nursing care is available there but lacking elsewhere. Many persons have lost their lives by going to a distant place reputed to cure tuberculosis, where they camped out or lived in a boarding-house or sought a light job, and they might have recovered if the money had been invested in proper treatment near home. A wealthy patient can, of course, go where he pleases, wherever good treatment can also be obtained, and there is no reason why he should not do so; but it does not follow that because a few persons may indulge in the luxury of climate, such indulgence is a common necessity. The average patient must get the greatest amount of good from limited funds. He should choose a sanatorium near home, not a hotel in a resort; a long period of treatment near home rather than a short period elsewhere; rest instead of travel; and proper food rather than scenery.

The average tuberculosis patient desires to go away. He seeks high adventure and self-sacrifice. To win a great fight he would brave new and unknown dangers. Also he wants to travel. And he still believes in the specific virtues of special climates. Like Naaman, the leper in the Bible story, he is willing to do some great thing for quick results. He would seek a mountain top or a desert where, he thinks, the waters are cleaner than those of Jordan and the air is purer than among the hills at home. But the patient is usually willing to take advice, and he should be told that the ordinary case of tuberculosis does not need a change of climate.

There are unusual cases, one in a hundred, perhaps, when a change of climate is actually needed, most frequently to escape hot weather. Cold weather is usually desirable. A radical change in the habits of the individual is often necessary. That is why he should go for the first six months to a nearby sanatorium. There the chief business is getting well. He lends himself to the routine of rest and more rest, asleep and awake, freely flowing air night and day, good food, proper food habits, and the other elements of sanatorium life. He learns to "play the game", and after graduation from a sanatorium he is a safe risk for his family physician to treat.

THE SUBSIDIZING OF MEDICAL TREATMENT FOR RURAL COMMUNITIES

The eventual subsidizing of medical treatment for rural communities by the state as the only practical method of alleviating the uneven distribution of doctors today, was the answer given recently by Alexander S. Begg, Dean of Boston University's School of Medicine, when he was asked what the B. U. institution was doing to send young doctors to rural sections of the country where their services are so much needed.

He stated that although many factors enter into the distribution of physicians, the economic factor is primary. "Young men who study seven and a half to ten years after leaving high school naturally pick a community in which to start their practice where they are assured of financial recompense.

"The Boston University School of Medicine is especially interested in turning out well-rounded and well-trained men who can meet an emergency when it arises. We cannot, however, urge them to go into fields in which there is little or no return.

"In many foreign countries this problem of the distribution of medical aid is solved by a system of subsidizing the young medical school graduate who is taken immediately on completing his university training and sent by his state to the country as a physician on a salary for a limited period."

There are 228 students in the B. U. School of Medicine where nearly ideal teaching conditions of four or five students per teacher prevail because of the limiting of students and the volunteer service rendered the school by staff members of the Massachusetts Memorial Hospitals.

Certain towns in New England attempt to attract doctors by guaranteeing them a certain amount of money each year. This system has not worked very successfully as certain of the inhabitants of several such towns have felt that they are entitled to free medical treatment because of the subsidy.

"As a matter of fact," Dean Begg said, "the lack of medical attention in rural communities is many times overstressed. The telephone, good roads, and other means of rapid communication and transportation have done much to tie together the rural district and the city and obviate the necessity of more doctors in certain communities. The general medical care even in rural communities today, is pretty good, except of course in the sparsely settled areas which will never be sufficiently covered by doctors, to take care of all emergencies.

"There are some towns where medical care is subsidized in a different way. Under the Milbank Foundation, for instance, certain health centers have been established in selected rural districts for experimental purposes. These center about small hospitals, usually of no more than fifty beds, and they guarantee to pay a young doctor at a small salary for a limited period. After this, however, he must care for himself, which in many of the cases means that he will of necessity be forced to return to the city.

"After a young man has studied for a profession as long as has a young doctor, usually under conditions of privation during that period, there are many things to be considered in choosing the locality in which he is to live and carry on his practice. If he is to raise a family, he must consider schools and churches. Then again, a young doctor freshly graduated from a medical school is used to the modern apparatus and conveniences of the hospital such as the x-ray and other laboratory aids, which unfortu-

nately are too expensive to be provided by him. There is a penalty which one pays for living in a sparsely settled community."

"In medicine we cannot aim at second best." We graduate no class B doctors, and class A men will not go to places where they cannot satisfy certain standards of living and practices of medicine."

"Medical associations now are making a scientific study of the problem of doctor distribution, but the ideal way of handling the question has not yet been found," he said.

"Usually towns cannot afford to pay for the subsidizing of doctors, and as I see it, the only way out is for the state to finance such a movement. Here again we must consider a difficulty, in that local pride will often discourage such state assistance. It will not be necessary to have a doctor in every town, but rather to plan out medical centers which are within easy calling distance of the rural parts.

"Medical schools are turning out about enough doctors today to meet the present needs. There is no actual shortage of physicians; rather the distribution is faulty. This latter condition, however, will never be completely corrected.

"What we are trying to do with our young doctors," the speaker concluded, "is to make them teachers as well as physicians."

EDITORIAL NOTE: The references to the school with which Dr. Begg is connected apply equally well to practically all Class A medical schools.

COMPARISON OF DISEASE INCIDENCE IN CONNECTICUT WITH 1930 AND SEVEN YEAR AVERAGE

MONTH ENDING FEBRUARY 7, 1931

	1931					1930			
Diseases	Week ending Jan. 17	Week ending Jan. 24	Week ending Jan. 31	Week ending Feb. 7	Average cases reported for week corresponding to Feb. 7 for past seven years	Week ending Jan. 18	Week ending Jan. 25	Week ending Feb. 1	Week ending Feb. 8
Anthrax	—	—	1	—	—	—	—	—	—
Cerebrospinal Men.	1	4	—	1	1	—	—	2	2
Chickenpox	135	113	88	82	113	178	191	117	152
Conjunctivitis Inf.	1	—	2	8	3	—	1	—	—
Diphtheria	10	15	11	10	41	22	32	25	24
Encephalitis Epid.	—	1	1	—	1	—	—	—	1
Favus	—	—	—	—	—	1	—	—	—
German Measles	6	8	4	5	19	42	34	21	32
Influenza	82	140	176	182	100	9	21	8	9
Malaria	—	—	1	—	—	—	—	—	—
Measles	192	286	242	257	251	44	23	25	24
Mumps	104	60	74	61	59	26	62	57	26
Pneumonia (Broncho)*	32	36	41	91	59	35	25	41	47
Pneumonia (Lobar)	37	54	71	80	53	36	37	47	54
Scarlet Fever	68	74	44	53	126	84	138	97	135
Septic Sore Throat	2	1	4	2	2	2	—	1	1
Smallpox	—	—	—	—	1	—	—	—	—
Trichinosis	—	—	1	—	—	—	—	—	—
Tuberculosis	29	22	32	28	27	24	36	23	25
Tuberculosis (O. F.)	1	2	3	—	2	4	2	3	2
Typhoid Fever	2	1	—	—	3	1	—	—	—
Undulant Fever†	—	1	—	—	—	—	1	2	—
Whooping Cough	58	52	77	50	72	46	100	42	65
Gonorrhea	27	16	80	11	32	67	34	19	28
Syphilis	55	23	54	46	31	49	38	33	19

*Made reportable January 1, 1925.
†Made reportable August 14, 1928.

Remarks: No cases of Asiatic cholera, glanders, plague and yellow fever during the past seven years.

NATIONAL CHILD HEALTH DAY

Resolution

The May Day Child Health Day Committee of the Conference of State and Provincial Health Authorities of North America met at the headquarters of the American Child Health Association in New York City December 19 and formulated a May Day—National Child Health Day Program for 1931.

In every country and from days long before the coming of the Christian era, May Day festivals have given expression to man's joy in the fact of life itself, his gratitude for the fundamental gifts of food, sunshine, clement weather, fecundity of earth, opportunity for work and for the continuance of life.

In the United States May Day—now by Act of Congress National Child Health Day—is likewise dedicated to happiness. There is joy, laughter, song and rhythm of dancing feet. But there is more than this. There is the hope of seventy-five million people for the young life of their children. There is the gathering of communities not only to be happy and rejoice but to take upon themselves the responsibility of "lifting their children to higher opportunities than they themselves have enjoyed". This is the passion that influences the hearts of our people on May Day—National Child Health Day.

The observance this year draws added fervor from President Hoover's recent White House Conference on Child Health and Protection, for the programs which are proposed to further the health and happiness of the child, "regardless of race or color, or situation, wherever he may live under the protection of the American flag," are based upon the nineteen points of The Children's Charter, which was drawn up and adopted by those who made the Conference investigations.

Who are the children of the nation, the little boys and girls in the nation's homes?

They are children of rich and poor, normal children and handicapped children, gifted children and dull children. Some of them bear burdens of work beyond their years and are in danger of exploitation. Some of them, in the next year, will be sick with sicknesses that could be prevented. Some of them have the wide stretches of country in which to run and play and swim and fish; others must play in the city streets where the hazard of accidents shadows their heedless steps. Many of these children go happily and normally from home to school in the morning and back home at night; but many others are runaways from school, the childish truants from whose number the delinquents of tomorrow will so largely be drawn. The children of our nation are sheltered most often in the homes of their fathers and mothers; but they live also in institutions and in foster homes. They are forty-five million children, differing in circumstances, personality, opportunity and ability, but each possessing the gift of life and each endowed with inalienable rights to fulfill to its maximum his capacity for health of body, mind and spirit and to enjoy the happiness that results therefrom. Whoever they are, whatever they are, wherever they live, they are our children today and the nation's citizens tomorrow.

Therefore each of us is challenged on May Day—National Child Health Day to take a share of responsibility for the health and protection of the children in our midst and to secure for them the rights named in The Children's Charter as the first rights of citizenship.—*Bulletin American Child Health Association.*

ADDITIONAL CASES OF JAMAICA GINGER PARALYSIS RECENTLY REPORTED

The U. S. Public Health Service is in receipt of information which indicates that cases of Jamaica ginger paralysis are still occurring in the United States.

Some months ago it was announced by the Public Health Service that the cause of Jamaica ginger paralysis had been determined to be tri-ortho-cresyl phosphate, which evidently had been used as an adulterant in the manufacture of Jamaica ginger extract.

It is not yet determined whether these recent cases of Jamaica ginger paralysis are the result of the use of some of the older preparation which caused the cases last spring and which is still on the shelves or whether it is a new product which is being marketed by unscrupulous manufacturers. It is desired to give wide publicity to the fact that all persons should avoid the use of Jamaica ginger extract as a beverage.

In issuing this warning, the U. S. Public Health Service announces that no cases of this poisoning have been reported in connection with the use of any other ginger products or preparations, the cases observed having been associated with the improper or illicit use of Jamaica ginger extract.

NEW $500,000 HOSPITAL AT WILLIMANTIC, CONN.

Construction work is shortly to begin on a new $500,000 hospital of approximately 100 bed capacity in Willimantic, Conn. Special interest attaches to this project not only because of the fine type of hospital service to be provided in this small community, but also because the raising of the building fund under present conditions is looked upon as evidence of the underlying economic strength of New England.

The hospital trustees were in a quandary last year as to whether they could possibly raise the necessary $500,000 in their small community under existing business conditions, or whether it would be better to take advice offered on every hand and postpone to await the return of normal prosperity.

The need, however, was urgent and they were advised by financial experts that the money could be raised in spite of hard times. They therefore proceeded with the campaign which was completed in the middle of December, at a time now generally looked upon as the trough of depression. The $500,000 objective was slightly over-subscribed at

that time and the total has subsequently been increased to over $510,000 by additional contributions.

The new hospital is to be known as The Windham Community Memorial Hospital and is to take the place of the old St. Joseph's Hospital which has served this section of the State for many years. The president of the Board of Trustees is Mr. John F. Carr and the Chairman of the building fund campaign was Mr. James B. Fullerton. The Chairman of the Building Committee, who also served as the Chairman of the so-called Memorial Committee in charge of obtaining the larger subscriptions in the campaign, is Mr. George F. Taylor.

The new plant will be built upon an entirely new site and is to represent the most advanced principles of hospital design. The plans have been prepared by a firm of architects specializing in hospital work, working in coöperation with an expert consultant who conducted a survey of the community to determine its hospital needs.

The movement for a new hospital aroused great enthusiasm in Willimantic and the unexpectedly complete success of the undertaking is regarded locally as a challenge to pessimism and a definite step toward resumption of normal business conditions. Early commencement of construction activity, moreover, is expected to be helpful in relieving the local unemployment situation.

THE WAY OF TRANSGRESSORS IS HARD

Andreas F. Christian who conducted a private hospital in Boston for several years was deprived of his license to practice by the Board of Registration in Medicine in 1927 and has, since that time, been before the courts for certain alleged financial irregularities. He was placed under arrest in New York recently charged with forgery.

CORRESPONDENCE

A CRITICISM OF THE EDITORIAL "THE WICKERSHAM REPORT AND THE MEDICAL PROFESSION"

February 15, 1931.

Editor, *New England Journal of Medicine:*

Referring to your editorial in the *Journal* of February 12, 1931, on "The Wickersham Report and the Medical Profession," it does not seem quite clear just why the medical profession wishes to express its appreciation of the recommendations of the Commission for the abolishment of the requirement of specifying the ailment for which a patient is prescribed liquor. Rather, let the Federal Administration thank the Commission for indicating a way by which the Administration may make itself appear less ridiculous than it has done ever since the Noble Experiment began.

As a principle of sound ethics it is no federal or local official's business what ailment Tom, Dick or Harry may have, so long as he has no reportable communicable disease. And it is equally a principle of sound ethics that the doctor has no business or license to broadcast the privacies of the sickroom. If Acts of Congress run counter to these principles, the principles remain unchanged.

It is now no longer necessary, when prescribing prohibition liquor for doctors to record the patient's ailment on the stub of the liquor prescription, but he must continue to record it in the official record book, form 1402. For this relief, you say, the medical profession wishes to express its appreciation.

"Debility" is a perfectly good and widely accepted ailment for which liquor may with propriety be prescribed. No one may have a pneumonia or a broken leg or even a thirst without having debility. I suggest, therefore, that when prescribing liquor, "Debility" be considered by all self-respecting physicians who feel an obligation of safeguarding the intimate affairs of their patients, as an adequate diagnosis for the requirements of the White Ribbon Inquisitors who are at present managing the affairs of State in this Land-of-the-Free. (God save the mark.)

H. F. R. Watts.

SHALL THE STATE EXTEND THE FIELD OF LABORATORY SERVICE?

The Commonwealth of Massachusetts
Department of Public Health
State House, Boston

February 11, 1931.

Editor, *New England Journal of Medicine,*

In view of the very general interest in the extent of medical service to be given by governmental agencies and the apprehension of "state medicine" the following letter which we have recently received is of interest:

> "Do you make a practice of doing blood sugar tests if doctors send them in to you? I am simply asking for information as I have no very definite ideas regarding the matter. I rather suppose, however, that the time will come that general practitioners would be helped if they could get such tests made by you especially for their poorer patients."

Although some states, notably New York, give this type of service, my reaction is that it is unsuitable. In the fields of sanitary control of the environment and communicable disease there is, I think, quite general acceptance of the soundness of governmental programs. The whole difference of opinion seems to me to center around those activities generally classed as personal hygiene in which come the detection and correction of defects in pathology in pregnant women, infants, children, adolescents, and now, with our interest in chronic disease, in adults. Of course, it may be said that this is analogous to the tumor diagnostic service which we give and I can see where away from the larger centers where laboratory work is difficult and expensive the offering of this service by the government may well have its supporters. On the other hand, if we do blood sugars, why not all the rest of blood chemistry and urinalysis, electro-cardiography, and the whole gamut of

clinical laboratory service and other instruments of precision. Theoretically, if such service is to be given, it should be given by a department of disease rather than health. This is perhaps haggling, and yet I think we must try to see some basic principles under all this if we are to go straight at all. It can, of course, be said that in view of the Department's request for authorization to give service in rheumatism such an attitude on our part is inconsistent. Also it is true that things are done not for any profound theoretical soundness but because of the pressing exigencies of the moment.

I should be glad to receive comments through the *Journal* or directly on this matter and to know whether there is any general demand for extension of such service as mentioned in the letter.

GEORGE H. BIGELOW, M.D.,
Commissioner of Public Health.

AN UNUSUAL RECORD OF PULSE, TEMPERATURE AND WEIGHT

February 6, 1931.

Editor, *New England Journal of Medicine*,
165 Newbury St., Boston.

Dear Sir:

It has long been one of my pet desires to find a patient whose temperature, pulse and weight were identical. A few days ago a young girl came in to see me in the morning whose temperature was 96, pulse 96, weight 96. I feel that I have not lived in vain!

Very truly yours,
JOHN B. HAWES, 2ND.

THE CHIROPRACTIC BILL "HOUSE—NO. 914" AND THE MEDICAL PROFESSION

Careful and minute inspection of "House—No. 914" should be made by all ethical practitioners of medicine. An editorial footnote[1] calls it "A weak and illogical bill." The chiropractors of this state do not agree, but feel that this is a strong bill and a logical compromise with objections to their former bills before the Massachusetts Legislature. I agree with the editorial footnote, and paradoxically, I agree with the chiropractors.

What should be the attitude of the medical profession towards this bill? Have they a right to regard it with more or less good-natured amusement or should they meet the challenge it lays down to scientific medicine?

All sectarians and not a few wholly disinterested persons will accuse a physician of bias, if he should offer any criticism of chiropractors or chiropractic methods. However, the medical profession owes a duty to the public and should at least warn the people when there is reason to believe that any menace to public health threatens.

I have before me a diploma granted by a "university" legally qualified by the State of Illinois to grant that diploma. It was obtained by approximately sixteen hours of actual study. There is also a group of booklets measuring 5 x 7 inches by 1½ inches thick—these booklets contain all the text necessary for obtaining that diploma with its degree of Doctor of Chiropractic. It would seem fair to assume that other diplomas have been awarded to chiropractors with a like amount of preparation for this degree.

Just what is meant by chiropractic? "Simon-pure" chiropractic—the science of adjusting, by hand, displaced vertebrae of the skeleton—is credited to D. D. Palmer, of Davenport, Iowa, and dates from 1895.

"The chiropractor makes the spine the especial and only locality for effecting results essential to the cure of abnormal diseased conditions of all kinds. The chiropractic philosophy is defined as being an adjustment of 'luxated' (completely dislocated) or 'subluxated' (partially dislocated) vertebrae, and that said luxated and subluxated vertebrae cause all the physical ills to which mankind is subject.

"Acting upon this hypothesis, his special aim is to reduce these vertebrae to their normal state, and that when this is accomplished, disease necessarily subsides or its cause is removed, and a normal state is restored or established, and health is necessarily restored.

"The claim of the chiropractor is that impinged or unduly pressed spinal nerves resulting from spinal luxations or subluxations—being the cause of the condition denominated disease—that adjustments of these spines remove the cause, and a restoration follows as night follows day.

"The entire spinal column is the field of battle, as it were, and all other parts of the body are utterly ignored as regards the adjustments.

"Chiropractors claim that the entire body is supplied with nerves emanating from the spine, and that these nerves control every tissue and function of the body, and that when these spinal nerves are free from pressure or interference, the body is in a condition denominated normal—or healthy.

"The adjustment of the spine is characteristic and differs from all other methods and is done with the hands of the operator suddenly, specifically, at the point where the subluxation seems to be, and results instantaneously from the adjustment—provided the response is obtained as intended by the adjuster.

"Diagnosis of all conditions is made by what is denominated 'palpation'—that is feeling with the finger tips the deviations of the spinous processes from their supposed normal condition. When all the processes are in 'line', the patient is in a state of health, but if a slight variation exists, the person is abnormal or diseased."

Please read again these last seven paragraphs which are not the definitions of a biased member of the medical profession. They are quotations taken from a textbook of chiropractic.

We believe, in the words of an eminent jurist, that "it is surely only elementary to say that before one can treat a disease intelligently and efficiently, he must know much about the nature and extent of that disease, the organs and parts affected, and even the

cause of that disease. All these things and many more enter into an intelligent, practical, and effective treatment".

And yet B. J. Palmer, son of the accredited founder of chiropractic, D. D. Palmer, the head of the most important chiropractic college stated "A person comes to us without telling us what the trouble is; it makes no difference whether a physician has already diagnosed it as insanity, appendicitis, indigestion, or anything they call it. The chiropractor needs to know nothing about that case from a physician's standpoint; it is immaterial, yet he (the chiropractor) can take that case, put it down on his benches and analyze that spine just as accurately without knowing those things; in fact, sometimes I think better. . . . It is not essential the chiropractor should know what the patient said he had, but you can adjust the current for it, running into the organ, and the patient is well. That is where chiropractic becomes purely a mechanical proposition, a mechanical and electrical-making circuit proposition in a man."

Ernst Du Val, who conducts or did conduct the Canadian Chiropractic College in Hamilton goes a little more into detail and states "Chiropractors have no earthly use for diagnosis, as such, for the chiropractor is unlike the majority of the other healing professions, to whom diagnosis is a necessity, because of their having to administer the right medicine for the right disease, and therefore it becomes imperative to have a correct diagnosis of the conditions on account of the danger involved in administering the wrong medicine, which might prove disastrous. But it is not so with the chiropractor whose system involves only the removal of the cause of the disease, and *that being always the same* and requiring no dangerous drugs, diagnosis therefore becomes useless, except that he, as well as others, must know sufficient symptoms and diagnosis for the purpose of differentiating of contagious and non-contagious disease, not to assist or guide him in his work, but to conform to the laws of the several boards of health, who require that contagious cases be reported, more fully investigated and, if necessary, isolated." Du Val does not, here, account for conditions requiring surgery.

B. J. Palmer, in one of the "announcements" of his school, states: "We do not bother with the compounding of chemicals, or the analysis of secretions and excretions. Palmer School of Chiropractic students save time and money by omitting these useless studies. The chiropractor does not take the temperature, the sputum is not examined, he never taps the chest or stethoscopically listens as in auscultation . . . he never looks at the tongue. . . . In fact he makes no diagnosis or examination."

Now read again the Bill "House—No. 914," Section 87I, defines Class A schools. Since 1895 there have been about 150 chiropractic schools. In 1928 forty of these schools were still active. Thirteen of these schools have made (as of 1928) affidavits to the "American College of Chiropractors" that the curriculum includes 3,528 forty-five-minute hours of work, and on the basis of these affidavits have been rated by this "college" as "Class A schools" and awarded "diplomas of honor". . . . The American College of Chiropractors admits that none of these schools were inspected prior to their being rated and that none of their claims have been investigated (1928) since. So far as I have been able to learn none of these schools will permit an official investigation.

In the "report of inspections", *Journal of the A. M. A.* May 26, 1928, vol. 90, pp. 1733-1738 the following statements are made under the heading of "Comment":

1. Of the fifty active schools listed, a few are mere "branches" rather than separately existing institutions, and these fifty constitute less than one-third of the number formerly existing.

2. All but a mere handful of these fifty existing schools are so poorly housed and so inadequately financed that their continuation is problematic.

3. Very few of these schools have even one adequately trained teacher on the faculty, and there are probably less than five expert all-time teachers in the entire lot of fifty institutions.

4. Not one of these schools actually enforces a matriculation requirement of even five minutes of high school study.

5. Not one of the fifty schools gives so much as one worthy laboratory course or has one worthily equipped laboratory.

6. Not one of these schools conducts a clinic in which a wide variety of the common diseases may be studied.

7. There is not one clinic equipped with the trained personnel or the scientific apparatus for the clinical diagnosis of a variety of the common diseases, or having a laboratory equipped for checking such clinical diagnosis.

8. There is not one clinic equipped for the proper treatment of patients suffering from such diseases.

9. There is not one of these schools whose students or whose faculty may enjoy the privilege of practise or even of observation in any worthy hospital.

10. There is not one of these schools that does not proceed on the basis of improved theory, ignoring the lack of endorsement by all worthy educational institutions.

11. There is not one of these schools that does not ignore or even avowedly oppose the scientific point of view and the facts of medical science accepted by the authorities of the entire civilized world.

12. There is not one of these schools that does not owe its existence to the fact that it offers a short cut to the practice of medicine.

Section 87F, again referring to the Chiropractic Bill, paragraph 2 holds a threat of fine or imprisonment should a physician decline "forthwith to write" a letter as a medical or surgical consultant for the chiropractor at the request of his patient. The last section of the Bill also calls for a consultant for the chiropractor whose patient has died. Should the physicians decline consultation (no penalty is attached

for declining) the chiropractor might be in difficulty in trying to dispose of the body since the medical examiner is not notified except on a written disagreement between chiropractor and physician.

One other of many sections of the Bill warrants careful scrutiny—87L. The examination papers of the chiropractors are to be turned over to the Chiropractic Board for correction even though the questions are written by the "Board of Registration of Medicine."

Now it is obvious that the medical profession recognizes the right of a sane, adult individual to choose what method he will in the treatment of his own ailments, provided he, in exercising that right, does not become a menace to his fellows. With that right we have no quarrel.

The proposed legislation neither affirms nor denies that right. The proposed legislation is not necessary. The proposed legislation is distinctly class legislation.

Chiropractors may now treat disease if registration by the State Board of Registration in Medicine has been secured; present laws provide for that. If they are to treat disease they should meet the standards now set forth by existing laws. There should not be one standard for a graduate of a Class A medical school and another standard for a graduate of a Class A chiropractic school in the treatment of cancer, infantile paralysis, tuberculosis of bones, joints, or lungs, diphtheria, tetanus, arthritis, heart disease, or any other disease.

It is hoped that the medical profession will give the Chiropractic Bill its close attention and will make its position clear, and that the Senators and Representatives will scan every provision carefully in the light of all available information.

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3 "A Visit to a Chiropractic School." Dock. J. A. M. A., Jan. 7, 1922, Vol. 78, p. 60.
4 "The Fountain-Head of Chiropractic; What of Its Product?" Monthly Bulletin, Fed. of State Med. Boards, Vol. VI, No. 7, July, 1920, p. 176.
5 Pamphlet of "Universal Chiropractic Association."
6 Report by Justice Hodgins of the Supreme Court of Ontario; six articles in Leslie's Weekly, Scientific American and the Atlantic Monthly—quoted in a report published by the Publicity and Educational Committee of the British Columbia Medical Association, a report by the Rev. A. E. Cooke of Vancouver.
7 Abstracts and supporting statements of a report by Mr. Justice Frank E. Hodgins, of the Supreme Court, Toronto, who in 1916 visited 14 cities in Canada and the U. S. and 18 chiropractic institutions. He interviewed 234 people and studied 200 pamphlets bearing on the question of chiropractic.
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S. M. FITCHET, D. C. (American University).
A. B.—(Clark University).
M. D.—(Harvard Medical School).
B. P. H.—(Harvard, Sch. Pub. Health)
Fellow—American College Surgeons.

THE ECONOMIC PROBLEMS OF MEDICAL PRACTICE

February 13, 1931.

To the Editor,
The *New England Journal of Medicine:*

The Greater Boston Medical Society, a long-established organization of Jewish practitioners in and around Boston, has lately become interested in the economic side of medicine. The discussion of this phase of medical practice has been well-nigh cast aside in the past by organized medical groups. Apparently it has been assumed that the only proper subjects to discuss at medical meetings are those of scientific nature. Practitioners, however, are more often than not, in these days of dwindling medical practice, hungry for the discussion of subjects of a more practical nature.

The Good and Welfare Committee of the Greater Boston Medical Society, mindful of this need, is arranging for programs with an economic flavor. The first of these meetings was held on January 20, 1931, at the Beth Israel Hospital and was in the nature of a debate on "State Medicine." Dr. Gilbert W. Haigh of Worcester spoke in favor, the Commissioner of Public Health, Dr. George H. Bigelow took a middle ground, and the writer of this letter spoke against this proposed type of medical practice. This meeting was well attended and will be followed on March 17, 1931, by one on "Dispensary Abuse."

Physicians have been slow to realize that their practice is gradually being crushed to nothingness between two millstones: the one, state medicine, the other endowed institutions such as medical out-patient clinics. By State Medicine I do not mean such a complete system of civil service as is advocated by Dr. Haigh, but rather the gradual (and even more rapid) extension into the field of medical practice of the State Department of Public Health ("and Disease?"). Cancer clinics, tuberculosis clinics, rheumatism clinics—next in line will be heart clinics, diabetes clinics, anemia clinics, thyroid clinics, etc., etc. These clinics are being put through so cleverly by the Commissioner of Health, always in response to an alleged "public demand", that they are upon us before we know they are started. How many physicians were present at the recent hearing of the Commissioner of Public Health on the institution of rheumatism clinics by the State? Exactly none.

The endowed institutions, sponsored and supported by millionaires with much surplus money are also increasing by leaps and bounds and thus represent the other millstone which is gradually crushing the much maligned practitioner. The large number of millionaires is resulting in the formation of one institution after another. These may compete with one another for patients, and in the eagerness for numbers, patients are being admitted not only from the poor stratum of society but from the middle class.

The practitioner should become mindful of these millstones. The medical firing line should be against the present extension program of the State Department of Public Health. If rheumatism clinics are not stopped now, we will have more and more clin-

ics of various types. Again, if we are not mindful of dispensary abuse, it will increase so that the only practice will be among the rich, and a relatively few doctors can take care of that.

The writer urges that groups of physicians throughout the State organize themselves for the purpose of combating these evils. If this is done, possibly the Massachusetts Medical Society will awaken to what is going on and will strive to coöperate and mediate between the State and the practitioners.

Very truly yours,

WILLIAM DAMESHEK, M.D.

RECENT DEATHS

STUBBS—DR. FRANK RAYMOND STUBBS, a prominent physician of Newton for thirty years, died at the Newton Hospital following a long illness, February 9, 1931, aged 58.

He was a graduate of Harvard College in 1893 and of Harvard Medical School in 1897. He acted as instructor in histology at the school before settling in practice, refusing an instructorship in the same subject at Wellesley College so that he might devote himself to general practice. Dr. Stubbs was a member of the visiting staff at the Newton Hospital; from 1917 to 1921 he was a councilor from the Middlesex South District to the Council of the Massachusetts Medical Society. He belonged to the Newton Medical Club, the Tuesday Club of Newton and was a Fellow of the American Medical Association.

Dr. Stubbs is survived by his widow, two sons and a married daughter.

BURNHAM—DR. ELMOND ARTHUR BURNHAM, consultant to the Veterans Bureau at Washington, D. C., has died at his home in Laurel, Md., at the age of 65.

Dr. Burnham was born at Putney, Vt., June 25, 1865, was educated at Goddard Seminary and at Tufts College, where he received an A.B. in 1889. Graduating at Harvard Medical School in 1894, he was a house officer at the Massachusetts General Hospital, settled in practice in Boston, was assistant in the department of tuberculosis at the Boston Dispensary and an assistant in clinical medicine in Tufts College Medical School.

During the World War Dr. Burnham was a contract surgeon with the rank of Major serving as consultant in diseases of the chest. Following the war he was connected with the Veterans Bureau, first in Boston, and after 1925 in Washington.

He was a Fellow of the Massachusetts Medical Society, of the American Medical Association and of the American College of Surgeons.

NEWS ITEM

DR. S. R. MEAKER WILL BE ONE OF THE SECTIONAL PRESIDENTS OF THE INTERNATIONAL CONGRESS FOR STUDIES REGARDING POPULATION—Dr. Samuel R. Meaker has accepted an invitation to be one of the Sectional Presidents of the International Congress for Studies Regarding Population which is to be held in Rome next September, and will present a paper on sterility before the Section on Medicine and Hygiene.

NOTICES

MEDICAL CLINIC AT THE PETER BENT BRIGHAM HOSPITAL

At 3.30 P. M., on Thursday, February 26, in the Amphitheatre of the Peter Bent Brigham Hospital, a medical clinic will be given by Dr. Henry A. Christian, to which physicians are cordially invited. These clinics will be held regularly on Thursday afternoons.

RADIO MESSAGES

Courtesy WBZA

SPONSORED BY THE STATE DEPARTMENT OF PUBLIC HEALTH

Every Wednesday at 5.20 P. M.

Program ending February 25, 1931.

February 25—"The Laboratory in Medicine and Surgery", Dr. William A. Hinton.

The Department of Public Health will tell the radio audience about its various activities every Friday—12:30 to 12:40 P. M.

"Health Forum"

Directed by the State Department of Public Health. Courtesy WEEI every Friday at 4:50 P. M. Queries and Answers will be broadcast.

Questions on health and prevention of disease may be sent to:—"Forum", State Department of Public Health, State House, Boston, Mass.

REPORTS AND NOTICES OF MEETINGS

GREATER BOSTON MEDICAL SOCIETY

A joint meeting of the Greater Boston Medical Society and the Beth Israel Hospital was held on Tuesday, February 3, at 8:15 P. M., at the Beth Israel Hospital. Dr. Philip E. Meltzer presided. The paper of the evening was read by Dr. Charles G. Mixter, Chief of the Surgical Staff of the Beth Israel Hospital. His subject was "The Rôle of Obstructive Lesions in the Urinary Infections of Childhood."

The infant and child during the first decade of life may be the victim of practically all the lesions of the genito-urinary tract, that are encountered in later life, with the exception of benign prostatic hypertrophy. These include infection, stone, tumor, urinary retention, vesical diverticulum and congenital malformations. Persistent or recurrent pyuria is the most common symptom encountered while hematuria, dribbling or retention, pain and tumor are less frequently the initial complaint. The onset

and course are silent and insidious and frequently the dangerous significance of the persistent pyuria may not be recognized by the physician before there has been extensive renal damage from back pressure and secondary infection. For this reason the age of the patient should never stand in the way of an attempt to make an accurate diagnosis by urological examination when necessary.

In competent hands the urinary tract of an infant of either sex can be investigated thoroughly by the use of the small calibre cystoscope. There are certain dangers associated with its use however and such an examination should never be done without a sufficient cause. The results obtained by cystoscopic study have justified the procedure. During the past 3 years at the Children's Hospital 185 cases of recurrent pyuria were studied and 104 were subjected to cystoscopic examination. Of this number 49 showed a lesion that could account for the pyuria and in 19 cases surgical intervention was resorted to. Rectal anaesthesia with avertin is the anaesthesia of choice.

The use of intravenous urography has been employed rather extensively since its introduction. The dosage for infants is 5 to 10 grams while the dosage for older children varies with the age. Reactions due to the drug have been extremely rare and an adult dose has been given without untoward effects.

The optimum time for taking the x-ray is from forty-five minutes to one hour after the injection. Its value, however, is somewhat limited due to the fact that the visualization is poor in the presence of infection, and in cases of megalo-ureters of early life. It is particularly useful in certain anomalies of the urinary tract and in the identification of tumors in the region of the kidneys.

The treatment of acute pyelitis in childhood is rightly conservative, but it is in those cases where pus, in clumps or to the number of ten or more cells per high power field continues to persist for six weeks or two months that the physician must realize the potential renal damage and institute a search for the underlying cause. This cause may be mechanical obstruction or neuro-muscular dysfunction. Obstruction of the mechanical type due to congenital malformation is the underlying cause in the large majority of cases. They occur commonly at one of the four following points: The junction of the pelvis and the ureter, the vesical insertion of the ureter near the vesical outlet especially in males, in the posterior urethra in the region of the veru montanum and at the urethral meatus either normally placed or ectopic.

While the site of obstruction may vary the symptoms accompanying it are quite characteristic. Fever, frequently associated with vomiting along with anorexia, pallor, malaise and abdominal pain are quite common. Hematuria may occur with tuberculosis or stone.

The surgical procedure in cases of persistent pyuria must necessarily depend upon the character and position of the lesion. If mechanical obstruction exists it should be eradicated. Where simple stricture is present the obstruction may be removed by dilation. Operation must be resorted to in the presence of aberrant vessels or stone. Nephrectomy is indicated in tuberculosis, echinococcus cyst and in pyonephrosis with a functionless kidney. The outcome in all cases, however, depends upon the duration of symptoms before operation and the degree of renal impairment.

Dr. Mixter closed with a discussion of x-ray films illustrating the features of his paper.

In the discussion Dr. J. D. Barney of the Massachusetts General Hospital emphasized the necessity for a thorough investigation of every case showing pus in the urine. (At the Massachusetts General Hospital satisfactory results have been obtained by the use of uroselectan though the picture of the lower end of the ureter is frequently not clear.)

Dr. W. C. Quinby explained that dilatation of the ureter may occur without obstruction, due to the infiltration of the wall by infection and the resulting atony. He also pointed out that malformations are frequently multiple and that these possibilities should be kept in mind when examining the patient.

Dr. J. L. Morse in speaking of the cases of acute pyelitis said they usually run a self-limited course. The forcing of fluids is the most important factor in the treatment. The differentiation of those cases of pyuria due to congenital abnormalities and those due to other causes is at times difficult and almost impossible early in the history of the case. It is important to remember the possibility of a perinephritic abscess in searching for the origin of pus.

WACHUSETT MEDICAL IMPROVEMENT SOCIETY

Dr. Paul Dudley White, Massachusetts General Hospital, read a paper entitled "Notes on Heart Disease of Historical Interest," at the last meeting of the Wachusett Medical Improvement Society held at the Rutland State Sanatorium, Wednesday, February 4, 1931.

This meeting was largely attended by the members of the Brookfield Medical Club who were guests of the Wachusett Medical Improvement Society. A number of physicians from the Staffs of the various hospitals in Worcester were also present.

The paper proved extremely interesting. There was no discussion but Dr. White offered a question period and for some time after the paper he was quizzed on cardiac conditions.

Dr. Ernest B. Emerson, Superintendent of the institution, was the host and Dr. Alton Pope, Director of the Division of Tuberculosis at the State House, and Dr. Glidden, Superintendent of the New Worcester County Sanatorium, spoke.

The meeting adjourned at 11 P. M.

WILLIAM T. KNOWLTON.

NORFOLK DISTRICT MEDICAL SOCIETY

A meeting of the Norfolk District Medical Society was held in the Children's Hospital amphitheatre, Tuesday, January 27, at 8:00 P. M., Dr. Lane presiding.

The first paper was presented by Dr. William E. Ladd on "The Acute Surgical Abdomen in Infancy and Childhood." This subject is of interest to the practitioner mainly from the standpoint of diagnosis, and decision as to surgical interference. Although the frequency of various lesions is different in children and adults, their variety is equally great in both. The important diagnostic factors are history, difficult because obtained through a third person but valuable, physical examination, unsatisfactory if the child is frightened and crying, and laboratory and x-ray studies which should supplement rather than supplant the other procedures.

Congenital pyloric stenosis is the most common surgical condition in the early weeks of life. Symptoms usually begin in the third week, but in 10 per cent. of the cases are found in the first week. Diagnosis is based on projectile vomiting of food and gastric secretions but no bile, scanty stools containing bile and mucus, weight loss and dehydration, peristaltic waves in the epigastrium going from left to right, but becoming reversed just before vomiting, and on palpation the pressure of an olive-shaped tumor under the right costal margin. For this last finding experience is necessary. Relaxation of the abdominal wall may be attained by feeding the infant sufficient water to cause vomiting. Palpating may be started just before or after this event. The use of a barium meal has now been abandoned as unnecessary and an impediment to convalescence. Operation is the safest method of cure. Lesser degrees (pylorospasm), which can be treated medically, present a difficult diagnosis. Obvious hypertonicity and the absence of a tumor are guides to diagnosis. Other conditions confusing in the differential diagnosis are atresia and stenosis of the duodenum due to intrinsic or extrinsic causes. (Illustrative slides were shown of these conditions.)

Intussusception is one of the most acute conditions of infancy. Occurring with maximum frequency at the sixth or seventh month, in healthy babies, it is a comparatively rare condition, yet early diagnosis is of paramount importance. The history and physical signs are typical: sudden onset of abdominal pain, crying, nausea, vomiting, and sweating. Between these paroxysms of spasm the patient looks well. Stools containing blood may be passed during the first twelve hours, but after this they are absent.

The invagination usually begins at the ileocecal junction, but in 7 of 100 cases it was at a Meckel's diverticulum. The sausage-shaped mass advances along the course of the colon. When under the costal border, it warrants an examination under ether.

Distention is a late complication, coming when the mass can only be felt by rectum, at which time fecal vomiting and high temperature ensue.

In the differential diagnosis, other causes of blood in the stools are to be considered. Operative mortality increases from 0 in the first 12 hours to 75 per cent. after 72 hours.

Meckel's diverticulum may cause no trouble, give rise to obstruction, or because inflamed and simulate appendicitis. Over 50 per cent. showed blood in the stools, exclusive of those associated with intussusception.

Appendicitis before the fourth year is a rarity, but from thence on it rises to a peak at the tenth year. The relative length of the appendix and of the mesocecum is greater in children than adults. Pain is the first symptom of appendicitis, then nausea, vomiting, leucocytosis, and fever (rarely above 103°). In the physical examination, tenderness and spasm are most important. The amount and position of tenderness may vary widely. When the appendix is low in the pelvis it may be elicited by rectal examination alone. When ruptured into the pelvis, it is prone to extend to the left iliac fossa. The air cushion of the cecum may mask the symptoms, so that tenderness may be in the right costovertebral angle, simulating pyelitis. In this latter condition, however, the temperature is usually higher, tenderness usually bilateral, and pus is found in the urine after two days.

Pneumonia may confuse, as physical signs may not be elicited in the early stages. Attention is drawn to this condition by rapid labored respiration, higher temperature, a difference in the spasm which yields to gradual firm pressure. Chest x-rays may give valuable evidence here.

Acute mesenteric adenitis may be impossible to differentiate from appendicitis. At operation, which seems to do neither good nor harm, is found a slight excess of fluid, reddening of the peritoneum, and great enlargement of the mesenteric lymph glands.

Retroperitoneal iliac abscess may simulate an appendix abscess, but the treatment is different. It is caused by an infection from the lower extremity. As it develops it pushes the peritoneum forward and upward. The absence of nausea and vomiting, the adherence to Poupart's ligament differentiate it from an appendix abscess. It is desirable to postpone operation until it can be drained without opening the peritoneum.

Idiopathic pneumococcus or streptococcus peritonitis may simulate appendicitis but should be treated differently. Commonly preceded by a respiratory infection, it is accompanied by nausea, and vomiting, occasionally diarrhea. The temperature and white count are higher. The abdomen is distended, tenderness and spasm being generalized. In small infants the abdomen does not present a board-like rigidity, but a doughy tenderness. The operation for this condition should be held in abeyance because of its high mortality, amounting to 65 per cent. among the patients at the Children's Hospital, until the patient has overcome the initial shock of the invasion of the peritonitis due to these infections and has established sufficient resistance to meet the effect of operation which consists of incision and drainage only. There are, however, certain difficulties presented in the problem of peritonitis due to the pneumococcus and staphylococcus because of the difficulties of diagnosis and prognosis.

Malformations of the urinary tract causing obstruc-

tion and giving alimentary symptoms should be remembered.

(Charts were then shown illustrating the operative mortality in the conditions discussed.)

The next paper was presented by Dr. Charles G. Mixter on "Types of Congenital Atresias of the Oesophagus. The Surgical Treatment."

This condition has been selected as illustrative of one of fairly numerous conditions, less rare than is generally thought, in which the mortality has been very high.

There have been 12 cases in the last six years, accompanied by no other congenital defects. It is presumably due to arrested development. There are two main types:

1. Complete atresia
   a. Complete absence.
   b. Proximal and distal ends connected by a fibrous cord.
2. Accompanied by a tracheal fistula
   a. Proximal segment connected with the trachea.
   b. Distal segment connected with the trachea.
   c. Combination of 2 a and b.

The radiographic differences were shown by lantern slides.

The location of the fistula is just above the bifurcation of the trachea. Lipiodol in x-ray demonstration is used instead of barium because of the communication with the lungs.

Preliminary gastrostomy has been invariably fatal but it is conceivable that it might succeed in the complete type. In the other types, fatal bronchopneumonia has always preceded any attempt at closure of the fistula. The future hope is, by early diagnosis, to operate before pneumonia develops.

Suspicion of this condition should always be aroused by a baby strangling and cyanotic on first attempt to take food.

The next paper was presented by Dr. Thomas H. Lanman on "Intravenous Urography in Infants and Children." A large number of studies were made with uroselectan before it was put on the market. Illustrative films of some of these cases were shown. The conclusions reached were:

1. In cases showing only mild infection of the kidney, good visualization is generally possible.

2. The value is greatly limited in cases with marked pyuria, which comprise about 50-60 per cent. of those warranting this type of study.

3. General unselected use is to be avoided and all the simpler diagnostic means should be employed first.

4. Its value is proportional to the user's knowledge of urinary tract disease in the age groups encountered.

5. It is of supplementary value to retrograde pyelography but generally less reliable.

6. There have been two cases of reaction in the series.

The next paper was presented by Dr. Patrick J. Mahoney on "Clinical Observations Following the Use of Tribromethanol (Avertin fluid) for Basal Anesthesia."

In a series of 125 cases at the Children's Hospital, each received 100 milligrams of Avertin per kilogram of body weight, this being smaller than the dose usually recommended. The 3 per cent. solution is prepared each morning for the entire day and inspected for cloudiness, which may mean excess concentration, and for acidity. An aqueous solution of Congo-red is used. If this is pink then the pH is six, indicating no decomposition to hydrobromic acid and dibromacetaldehyde, irritant and poison to the intestinal mucosa. Provided the solution is kept in a dark stoppered bottle this change does not occur. Experiments performed at the Children's Hospital indicate that air is more potent in causing decomposition than light.

The patient is prepared the night before with a high soapsuds enema followed by a saline irrigation. Next morning, after administration of morphia and atropine, the avertin is given before the patient is taken to the operating room. In 64 per cent. a deep sleep without excitement ensued within five minutes, in 27 per cent., 10 minutes, in 9 per cent., 25 to 30 minutes.

There was no nausea, vomiting, or headache during induction. It was retained in 93 per cent., expelled in 3 per cent., and partially expelled in 4 per cent.

For supplementary anesthesia, ether was used in 73 per cent. of the cases, by dropping on an open cone. Primary ether anesthesia is all that is required. In 21 per cent. nitrous oxide-oxygen 50:50 was used, in 4 per cent. local, and in 2 per cent. none.

The blood pressure falls 10 to 20 millimeters but rises rapidly following the supplementary anesthesia. Pulse shows gradual slow rise. Respirations are slightly increased in rate and definitely shallow so that abundant oxygen is necessary. In 2 cases carbon dioxide and oxygen anesthesia was necessary for stimulation. Ninety per cent. of oxygen and ten per cent of CO_2 concentrations are advisable here instead of the usual ninety-five and five.

Postoperatively six cases had slight nausea and two early vomiting. The patient awakes in 1½ to 2 hours as from a sound sleep, is restless for a while and then goes to sleep again, during which time it is easier than usual to give parenteral fluids.

The conclusions are:

1. Avertin fluid has a definite and indicated place in surgery.

2. It should be looked upon as a hypnotic preparatory to gas or ether and therefore it might be advisable to further decrease the dose.

3. It is absolutely indicated in surgery of the brain, chest, mastoid, and in plastic and genitourinary surgery.

4. A careful preparatory routine is essential.

5. Investigations should be done to determine the relative values of the two components of avertin fluid, tribromethanol and amylene hydrate.

The meeting was adjourned at 10:15 P. M.

THE NORFOLK DISTRICT MEDICAL SOCIETY

A regular meeting of the Norfolk District Medical Society will be held at the Boston Lying-In Hospital, 221 Longwood avenue, on February 24, 1931, at 8 P. M. Telephone Beacon 1400.

Business.

Communications: Papers by the Staff:

Inertia: The Use of Opiates, 15 minutes: The Use of Uterine Stimulants, 15 minutes; Forceps and Version, 15 minutes; Breech, 15 minutes.

Distocia: Elective Cesarean section, 15 minutes; Test of Labor in Border Line Cases, 15 minutes.

Collation.

FRANK S. CRUICKSHANK, M.D., *Secretary.*

THE MASSACHUSETTS PSYCHIATRIC SOCIETY

At a meeting of the Massachusetts Psychiatric Society on Wednesday, February 25, at the Psychopathic Hospital, Dr. Samuel W. Hartwell will present a paper on the Study of 25 Children With Shut In Personalities and Dr. Clifton T. Perkins a paper on Diathermy in the Treatment of General Paresis.

WINFRED OVERHOLSER, *Secretary.*
Assistant Commissioner.

THE GEORGE WASHINGTON GAY LECTURE

"The Rôle of Ethical Conduct in the Successful Medical Career" is the subject for the George Washington Gay lecture to be delivered at Tufts Medical School Wednesday afternoon, March 4, at 4.00 P. M. by Dr. Frank H. Washburn of Holden, Mass. Dr. Washburn, who is a graduate of Tufts Medical School, is the director of the Holden Clinic.

In 1925 Dr. George Washington Gay established a lectureship at Tufts Medical School. The purpose of this lectureship is to bring before the students the proper relation of professional ethics to the business side of the practice of medicine.

CARDIAC COURSE

The fifth meeting of the Cardiac Course given by the New England Heart Association will be held on Wednesday afternoon, March 4, 1931, at four-thirty p. m., in John Ware Hall at the Boston Medical Library.

Dyspnea, Cyanosis, and Cardio-Pulmonary Relationships.

1. Dyspnea. Dr. James H. Means, Boston.
2. Cyanosis (and Clubbing of the Fingers). Dr. T. Duckett Jones, Boston.
3. Cardio-Pulmonary Relationships. Dr. Samuel A. Levine, Boston.
4. Discussion to be opened by Dr. Robert S. Starr, Hartford, Conn.

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be on the evening of February 24 at 8:15 P. M. in the amphitheatre of the Peter Bent Brigham Hospital. An interesting program will be given by Dr. Harvey Cushing and Dr. Reginald Fitz.

WM. P. MURPHY, *Secretary.*

SOCIETY MEETINGS
CONGRESSES AND CONFERENCES

March 2-30—Lectures on Keeping Mentally Fit. Given under the auspices of the Massachusetts Division of University Extension and the Massachusetts Society for Mental Hygiene. Boston.

Lectures, in the Gardner Auditorium, State House, Boston, Monday evenings.

Course Leader: Dr. Henry B. Elkind, Medical Director, Massachusetts Society for Mental Hygiene.

March 2—Do We Americans Really Live? James J. Walsh, M.D., Medical Director, Fordham University School of Sociology, and Professor of Physiological Psychology, Cathedral College, New York City.

March 9—The Job and Mental Health. Elton Mayo, Harvard Graduate School of Business Administration.

March 16—Emotion and Intellect in Adult Life. William B. Terhune, M.D., Austen Riggs Foundation, Stockbridge.

March 23—Normal and Abnormal Fear. Abraham Myerson, M.D., Professor of Neurology, Tufts College Medical School.

March 30—"Nerves"; Their Meaning in Our Lives. E. van Norman Emery, M.D., Medical Director, Connecticut Society for Mental Hygiene.

February 24—The Harvard Medical Society. See details elsewhere on this page.

February 25—The Massachusetts Psychiatric Society. See details elsewhere on this page.

February 26—Medical Clinic at the Peter Bent Brigham Hospital. See page 404.

February 27—New England Pediatric Society. Preliminary notice. See details on page 348, issue of February 12.

February 27—Belmont Medical Society. See page 295, issue of February 5.

March 4—The George Washington Gay Lecture. See details elsewhere on this page.

March 4—Cardiac Course. See details elsewhere on this page.

March 13—The William Harvey Society at the Beth Israel Hospital. Dr. Samuel R. Meaker will speak on "The Social Aspect of Gynecology".

March 23-27—Fifteenth Annual Clinical Session of the American College of Physicians. See page 240, issue of January 29.

May 11-14—Meeting of the National Tuberculosis Association at Syracuse. See page 1310, issue of December 25.

July 27-31—Third International Congress of Radiology, Paris. Complete notice appears on page 385, issue of August 21.

DISTRICT MEDICAL SOCIETIES

Bristol North District Medical Society

April 16—Taunton Woman's Club.
September 17.

Essex North District Medical Society

The next meeting will be held at the Amesbury Country Club early in May.

Essex South District Medical Society

Wednesday, March 4—Lynn Hospital. Clinic at 5 P. M. Dinner at 7 P. M. Speakers: Dr. Henry H. Faxon, Boston; subject: Treatment of Varicose Veins and Ulcers by the Injection Method. Dr. Arthur W. Allen, Boston; subject: Neurovascular Surgery.

Thursday, May 7—Censors meet at Salem Hospital at 3:30 P. M.

Tuesday, May 12—Annual Meeting. The Tavern, Gloucester. Speaker: Dr. Morris Fishbein, Editor of the A. M. A. Journal of Chicago. Subject: "History of Medical Cults." Ladies invited.

Franklin District Medical Society

March-May—The meetings are held on the second Tuesdays of March and May at 11 A. M. at the Weldon Hotel, Greenfield.

Middlesex East District Medical Society

March 11—At Reading.
May 13—At Wakefield.

Norfolk District Medical Society

February 24—See details elsewhere on this page.

March 31—Dr. Arthur W. Allen. Subject to be announced (will deal with circulatory diseases). Hotel Kenmore, 8 P. M.

May—Annual Meeting. Date and details to be announced.

May 7—Censors' Meeting for examination of candidates at 171 Warren Street, Roxbury, 4 P. M. Candidates from schools on accepted list will forward application with certificate of graduation to the secretary at least one week prior to date of examination. Candidates from schools not on accepted list who have been in practice five years will forward applications together with five letters of recommendation from members in good standing in the Massachusetts Medical Society to Dr. P. P. Johnson, Cabot Street, Beverly, Mass., two weeks prior to date of examination. Fee for all candidates $10.00.

FRANK S. CRUICKSHANK, Secretary.

Norfolk South District Medical Society

Spring meetings are as follows:
March 5, April 2, May 7.

All meetings begin at 12 noon. Meetings will be held at the Norfolk County Hospital, South Braintree.

The censors will meet on May 7 at 11:30 A. M. at the Norfolk County Hospital, South Braintree.

NATHAN R. PILLSBURY, Secretary.

Suffolk District Medical Society

February 25-April 29—Combined meetings with the Boston Medical Library. These meetings will be held as specified below on Wednesdays, at 8:15 P. M.

February 25—Clinical Program, Boston City Hospital. See page 295, issue of February 5.

March 25—Clinical Program, Beth Israel Hospital.

April 29—Annual Meeting. Election of Officers. Boston Medical Library.

The medical profession is cordially invited to attend all of these meetings.

GEORGE S. DERBY, M.D.,
President, Suffolk District Medical Society.

LELAND S. McKITTRICK, M.D.,
Secretary, Suffolk District Medical Society.

HILBERT F. DAY, M.D.,
Boston Medical Library.

BOOK REVIEWS

Prenatal Care. Pp. 71. Bureau Publication No. 4 United States Department of Labor, Children's Bureau, 1930. Revised July, 1930. For sale by the Superintendent of Documents, Washington, D. C. Price 10 cents.

An earlier bulletin with the same name has been revised under the direction of the Advisory Committee of Obstetricians, an adjunct to the Children's Bureau, and Dr. Blanche M. Haines, Director of the Maternity and Infant Hygiene Division of the Bureau. The Committee of Obstetricians is an impressive array of men prominent in the practice and teaching of obstetrics throughout the country, happily headed by Dr. Robert L. DeNormandie of the Harvard Medical School as chairman. The committee acknowledges the assistance of Dr. E. V. McCollum of Johns Hopkins, who "made valuable suggestions on the diet section". This pamphlet is addressed to expectant mothers of all classes and all sections of the country, but the essentials of the subject are so completely covered, the text is so well written, the advice so sound, that it should be thoroughly mastered by all medical students and nurses, and its contents could with great profit be read by all doctors, who should know at least these fundamentals about so common a subject. The importance of instituting so-called prenatal care is carefully explained without arousing any fear. The appropriate diets for the undernourished, the normal, and the fat patient are discussed with great detail, but with commendable absence of technicalities or fads. The necessity of iodine is mentioned for the benefit of those in goitrous regions, as well as the value of cod-liver oil, or viosterol; but always the doctor's advice is recommended in matters of individual necessity or dosage. For some strange reason, however, it is said that "alcoholic drinks should be avoided entirely". The extravagance of this statement is probably not due to bureaucratic propaganda: neither can it, however, be attributed to good cold obstetrical judgment.

The subjects of exercise and clothing are very sanely discussed, even though the value of dull walking may be perhaps overrated. The paragraphs on "intercourse during pregnancy" and "mental hygiene" are succinctly but intensively written. Appropriately, too, the topic "father" in the index, at the back of the book, carries the reference to both of these pages.

Lists of supplies for mother and baby are given,—complete, with nothing superfluous, and mostly of common household materials. One notes with satisfaction that if three baby's dresses are included in the layette, instructions are given to make them of "crinkle crêpe which does not need to be ironed". Anything which will keep laundry work to the minimum is advisable. Some would omit them completely and allow the nightgowns to do double duty,—easily possible, for it is admittedly sinful to exhibit babies; dangerous for the baby, troublesome for the mother.

A simple, short, reassuring but adequate discussion is included of the complications of pregnancy,—toxemia, miscarriage, and bleeding. Only once in the text is the slip made which may arouse unnecessary apprehension. Such work as washing, sweeping, and such amusements as dancing, are categorically mentioned as possible causes of miscarriage. It were better to substitute for all the specific possibilities given a caution against excessive fatigue; and if intercourse during pregnancy is to be mentioned as a cause of miscarriage, it should be qualified by the word "excessive", especially, as earlier in the pamphlet the patient is advised to keep her menstrual calendar throughout pregnancy, that she may know those days when special care and protection are indicated.

Besides prenatal care, the pamphlet describes labor, and even gives directions for the unhappy husband or other attendant who must officiate at a precipitous delivery. The care of the new baby is simply described, the technique of nursing and even of stripping the breasts is clearly outlined. The last chapter is a long one telling in homely detail how to simulate a premature nursery at home and how to treat the baby which demands one.

An excellent list of books of interest to mothers is given, together with an adequate glossary and index. There are several wretched drawings of appropriate subjects. The caloric banana should never be included in a "still-life" of the prenatal parturient's dietary. The pamphlet is worthy of the department of obstetrics of any Class A medical school, and does the federal government great credit.

A Manual of Normal Physical Signs. By WYNDHAM B. BLANTON. C. V. Mosby Co., St. Louis. 2nd edition. 1930. Pp. 246. Price, $3.00.

This little book is planned as a teaching manual to aid the medical student in his course in physical diagnosis. It has been written in notebook form for the sake of brevity. In this, the second edition, there has been a revision of the whole text, expansion in some places, the chapter on "Palpation" rewritten, and illustrations inserted. As a manual this edition, although still relatively small, suffers somewhat from overweight. If it should again be republished, it is

to be hoped that thinner paper be used, and that the size be slightly reduced to fit the coat pocket.

The Surgical Clinics of North America. Volume 10, Number 6. December, 1930. Philadelphia Number. W. B. Saunders Company, Philadelphia.

This issue opens with a clinical lecture on cancer of the rectum by John B. Deaver. He outlines the various types of operation and the results that may be expected. The Lockhart-Mummery type consisting in colostomy followed by perineal resection is considered preferable in most instances.

A very interesting series of cases from the Temple University Hospital is presented by Wayne Babcock and, for the bronchoscopic aspects, Chevalier Jackson. Their first is a description of a one stage operation with esophagoscopic assistance for diverticulosis of the esophagus. The esophagoscope serves to outline and illuminate the pouch and to keep it clean while it is being excised. A duodenal tube is used for postoperative feeding. A sudden death due to coronary air embolism is reported as a complication of an operation on the lung. This may be the explanation of "pleural shock". An unusually interesting case is given under the description title of arteriovenous communication between the femoral artery and vein with increase in symptoms, hemorrhages and threatened gangrene following three operations including ligation of the femoral artery and of the vein. Quadruple ligation and excision with great improvement; secondary troublesome varices relieved by sclerosing injections.

Carnett offers an interesting discussion of so-called subacromial bursitis and its non-operative treatment. Calcareous deposits are frequently absorbed spontaneously. For his next topic he emphasizes the importance of considering chronic anal sphincterismus as a cause of constipation. He reports a case of gynandrous pseudohermaphroditism that was considered by three consultants to be a male but which laparotomy proved to be a female. He also discusses a case of intercostal neuralgia simulating an acute intra-abdominal catastrophe. The most important distinguishing sign is that the tenderness is not decreased when the abdominal muscles are voluntarily contracted.

Eliason and Wright cover the subject of pathologic fractures in a very thorough and systematic yet concise manner. Generous use of illustrations and tables aid in making this the most valuable article on this subject that the reviewer has seen. Union usually occurs in fractures through benign tumors and most inflammatory conditions, but is comparatively rare in malignant tumors. In cases of general disease the results vary with the course of the disease.

Muller believes that splenectomy in primary pernicious anaemia is still indicated in many cases in spite of the general success of medical treatment.

Ivy and Curtis outline several ingenious methods of treating complicated fractures of the mandible. In addition to variations in the technic of wiring teeth, traction is used from appliances imbedded in a plaster head cap.

Temple Fay discusses the management of tumors of the posterior fossa by the transtentorial approach, a method by which he has obtained a solution of the intracranial pressure problem, good exposure and good end results.

The value of and indications for encephalography and ventriculography and the technic are discussed and the advantages and disadvantages epitomized by Pendergrass.

The need of radical treatment in cases of fractures of the tarsal scaphoid and of the os calcis is emphasized by Crossan.

Klopp prefers the excision and suture method of treating hemorrhoids, absolute alcohol injection for prolapse of the rectum in children, and excision and primary suture for fistula in ano.

In brief, this collection of clinics from Philadelphia consists in a rather wide variety of subjects of practical interest presented in an able, lucid manner.

Operative Gynecology (Illustrated). By HARRY STURGEON CROSSEN, M.D., F.A.C.S., and ROBERT JAMES CROSSEN, M.D. Fourth Edition, 1930. The C. V. Mosby Company, St. Louis. 1078 Pages. Price $15.00.

In the preface the authors state that the complete resetting of this edition has permitted extensive additions and revisions. They emphasize the idea of selective treatment, presenting the various operations available for each disease and then devoting considerable space to a consideration of the particular operation best suited to each type of that disease. Thus the operations are described in relation to the pathological conditions for which they are employed, rather than primarily according to the anatomical region involved. This makes for some repetition, and, where repetition is avoided, for considerable cross reference. For instance, "Hysterectomy" appears in the chapter outline of Chapter II, on Prolapse, of Chapter VI on Inflammatory and Nutritive Diseases of the Uterus, and in Chapter VII on Myoma. The operations are described in detail only in Chapter VII, while special modifications of the operative procedure for adaptation to the specific pathology concerned remain in their respective chapters.

Standard gynecological operations are well presented and beautifully and profusely illustrated. In addition, many of the authors' modifications are fully explained. Some operations of only historical importance have been omitted, although in a few instances, notably Sims' work on genital fistula, a very satisfactory account remains. The critical estimates of the specific merits and indications of operations are very satisfactory, as are also the discussions on selection of operation for a particular pathological condition. Throughout the authors display great conservatism in regard to destruction of child-bearing function. This attitude is carried so far that one looks in vain for an expression of policy in regard to the uninvolved ovary in cases of carcinoma of the ovary, or for an appreciation of the rôle of ovarian function in

relation to endometrioma. It may be that these questions are discussed at length in the textbook, "Diseases of Women" by H. S. Crossen, from which the book under review derived, and to which it is supplementary.

Definition of the field of gynecology is always difficult, and the authors have precedent for inclusion of over 150 pages of operations on the urinary and intestinal tracts. It is surprising, therefore, that obstetrical operations, even so obviously pertinent as the Porro operation, are completely omitted. The final 200 pages are concerned with techniques of preparations, armamentaria anesthesia, and medico-legal aspects of gynecology.

Over twelve hundred excellent illustrations permit the reader to follow each operation step by step, and the captions are explicit enough to permit review of a procedure without reference to the text. The book should be of value not only to the general surgeon but also to the gynecologist, who will find alternative procedures carefully and critically evaluated, readily accessible through a comprehensive index.

La Pression Veineuse Périphérique. By MAURICE VILLARET, FR. SAINT-GIRONS and L. JUSTIN-BESANCON. Published by Masson et Cie, Éditeurs. Price 38 fr.

Villaret, Saint-Girons and Justin Besancon have written a three hundred page monograph on venous blood pressure which is based on a very extensive series of clinical observations and a small number of animal experiments. The point of view is primarily clinical and no attempt is made to discuss the underlying physiology of circulation.

The first portion of the book is concerned with the various methods of measuring venous pressure. The authors show that all indirect methods, based on the external compression of superficial veins, are inaccurate and that consistently accurate results can only be obtained by puncture of a vein and direct readings on a manometer or pressure guage.

The second portion of the book takes up the physiology of venous pressure and its variations in the different important veins. Among the salient points brought out are the following:—the normal peripheral venous pressure in the horizontal position is about 12 to 13 cm. of water or 1 cm. of mercury, roughly 1/13 of the systolic pressure. This is but slightly altered by changes in temperature, respiration, digestion, menstruation and age. Intravenous injections and bleeding cause marked but temporary changes. Pregnancy frequently causes a distinct rise in venous pressure without necessarily a corresponding increase on the arterial side. Alterations in position and any form of exertion naturally cause profound changes.

The third and largest portion of the book is devoted to venous pressure changes in disease. The authors here present a great number of clinical and therapeutic observations in all conditions which cause important variations in venous pressure. These are too numerous to review in detail, but accurate observations can be found by those interested in almost any special condition.

This monograph, therefore, appears to the reviewer to be a highly useful book of clinical reference on a subject which has received little attention in the past, but is of considerable importance in attaining a clearer insight into the pathological physiology of many forms of disease.

Les Fonctions Hépato-Biliaires. By M. CHIRAY and F. THIÉBAUT, Masson et Cie, Paris, 1930.

A very comprehensive study of liver function tests is presented by the authors. They divide the tests into two main groups. In the first are those dealing with the secretion of the biliary constituents into the gastrointestinal tract and their detection in the blood and urine. In the second group the authors discuss the rôle the liver plays in glucose, protein, fat and water metabolism; also the rôle as a detoxifying agent and its influence on the coagulation of the blood and the heat production of the body. Tests for all of these functions are presented.

They recommend the following liver function tests: the examination for biliary constituents in the blood, urine and duodenum; induced hyperglycemia; the nitrogen coefficient of Millard; induced diuresis; the hepatic glycuronic conjugation; the rose bengale dye test; the coagulation and bleeding time of the blood. They consider these to be of value in diagnosis, prognosis of hepatic disorder and liver function before and during surgical or medical therapy.

Physical Diagnosis. By WARREN P. ELMER, B.S., M.D., and W. D. ROSE, M.D. Published by C. V. Mosby Co., St. Louis. 1930. 903 pp and 337 illustrations. Price $10.00.

The present volume on the subject of physical diagnosis is essentially a thorough revision of the preceding editions of the late Doctor Rose. Although it still contains most of the elementary and accepted essentials, much has been changed and added, which indubitably stamps it a leader in its field.

The early chapters briefly yet sufficiently review the clinical anatomy of the thorax, the circulatory apparatus and the abdomen and its contents. The various components of physical diagnosis, i.e., inspection, palpation, percussion and auscultation are then lucidly presented, accompanied by brief historical notes and interspersed with excellent photographic illustrations. The various examinations of the sensory reflexes are described. Such special diagnostic procedures as mensuration, cyrtometry, thoracentesis and vital capacity are adequately touched upon.

Specialists in the fields of radiology and cardiology describe the essentials of their respective specialties as applied to physical diagnosis. These chapters contain, of course, a sufficient number of normal radiologic and electrocardiographic illustrations. Doctor Luten presents a new chapter on the cardiac arhythmias. Illustrations from autopsy material are not infrequent.

The format of the entire work is excellent and it is

highly recommended as a text to the medical student and as a means of review of an elementary but basic subject to the physician who should occasionally renew a probable former acquaintanceship.

The Mind at Mischief: Tricks and Deceptions of the Subconscious and How to Cope with Them. By WILLIAM S. SADLER, M.D., F.A.C.S. Funk & Wagnalls Co., New York and London, 1929. 400 pages.

This is a big book of four hundred pages, covering the entire subject of psychology as well as psychopathology. All that is actually known about the subject could easily be compressed into thirty or forty pages. Dr. Sadler's style is such that the book consists of page after page of padded material, none of which seems essential. The volume should also be criticised on the basis of poor English construction and the habitual use of modern slang. Fundamentally, the concepts expressed are reasonably good, but the manner of presenting the material is so bad that the book does not deserve recommendation.

Microbiology and Elementary Pathology for the Use of Nurses. By CHARLES G. SINCLAIR, B.S., M.D. F. A. Davis Company. Philadelphia. 1931. Pp. 362. Price $2.50.

This elementary volume, planned primarily for the use of nurses, has been prepared by Major Sinclair on the basis of his experience at the Army Medical School and at the Army School of Nursing. It is written simply and straightforwardly. The volume is adequate for the field which it plans to cover, although too elementary to be of practical use to medical students or physicians.

Studies from the Rockefeller Institute for Medical Research. Reprints. Vol. 73. Published by the Rockefeller Institute for Medical Research. 1931.

This volume continues to reflect the highly diversified field of work of the Rockefeller Institute and vividly illustrates how far the ramifications of medicine have led into the adjacent fields of science. Thus we find articles (among many others), on "The scattering powers of atoms in magnesium oxide and sodium fluoride," "Protoplasmic potentials in *Halicystis*," and "Isoagglutinins in the blood of cattle."

Affections of the Eye in General Practice. By R. LINDSAY REA. Lea & Febiger Publishers. 155 pages. $3.50.

This small book is written primarily for the general practitioner and those not directly interested in eye work. It gives a brief description of the principal eye diseases, rightly putting most emphasis on diagnosis, rather than treatment, especially of the more serious disorders, which should only be treated by the ophthalmologist. The most dangerous pitfalls in diagnosis are pointed out. It furnishes an easy means of getting at the chief points in ophthalmology for those not having the time or patience to consult the larger textbooks on the subject.

"Aphasia in Children." By ALEX W. G. EWING. Oxford University Press. Price $3.50.

This volume reports the results of careful study of ten aphasic individuals who suffered from a condition of partial deafness of a peculiar type.

The methods used were devised to reveal defects at the upper and lower limits of the audible range. The case reports are given in great detail. The data should be studied by those with special interest in the field.

"The final conclusion is that there are fundamental distinctions in symptoms and in aetiology between failures in natural speech development in childhood and the breakdown of the perfected processes in later life."

BOOKS RECEIVED FOR REVIEW

The Pathology of Internal Diseases by William Boyd. Published by Lea & Febiger. 888 Pages. Price $10.00.

Abdomino-Pelvic Diagnosis in Women by Arthur John Walscheid. Published by C. V. Mosby Company. 1000 Pages. Price $12.50.

Physics of Radiology by J. L. Weatherwax. Published by Paul B. Hoeber Inc. 240 Pages. Price $5.00.

Studies from the Rockefeller Institute for Medical Research. Reprints. Volume LXXIII. Published by The Rockefeller Institute for Medical Research. 600 Pages.

Landmarks and Surface Markings of the Human Body by L. Bathe Rawling. Sixth Edition. Published by Paul B. Hoeber, Inc. 97 Pages. Price $3.00.

The Antiquity of Hindu Medicine and Civilisation by D. Chowry Muthu. Third Edition. Published by Paul B. Hoeber, Inc. 112 Pages. Price $1.50.

The Factor of Infection in the Rheumatic State by Alvin F. Coburn. Published by The Williams and Wilkins Company. 288 Pages. Price $6.00.

Clio Medica edited by E. B. Krumbhaar. V.—Physiology by John F. Fulton. 141 Pages. Price $1.50.

A Manual of the Common Contagious Diseases by Philip Moen Stimson. Published by Lea & Febiger. 353 Pages. Price $3.75.

Annals of the Pickett-Thomson Research Laboratory. Volume VI—The Pathogenic Streptococci. Published by The Williams and Wilkins Company, in America and Baillière, Tindall and Cox in England. 470 Pages.

Practical Radiation Therapy by Ira I. Kaplan with a special chapter on Applied X-ray Physics by Carl B. Braestrup. Published by W. B. Saunders Company. 354 Pages. Price $6.00.

Traumatotherapy by John J. Moorhead. Published by W. B. Saunders Company. 574 Pages. Price $7.00.

Modern Surgery by John Chalmers DaCosta. Assisted by Benjamin Lipshutz. Tenth Edition. Published by W. B. Saunders Co. 1404 Pages. Price $10.00.